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# Effects of Description Text Structure Instruction on Second and Third Grade Students With Disabilities

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# Effects of Description Text Structure Instruction on Second and Third Grade Students With Disabilities

**by**

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# Dedication

This dissertation is dedicated to the loving heavenly Father for His continuous guidance, to my family for their unconditional love and support, and to children who are struggling in reading comprehension.

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Six years. 2190 days. 52560 hours. 3153600 minutes.

Six years ago, 21 days after our daughter was born, we moved from Eugene, OR to Austin, TX and started the doctoral program in the Department of Special Education. It was a huge transition to the baby, my husband, and me. Six years later, this newborn baby is about to enter first grade this summer, starting her formal education. I am graduating from the doctoral program, a conclusion to my student life.

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# Effects of Description Text Structure Instruction on Second and Third Grade Students With Disabilities

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The present study examined effects of an intervention that focused on description text structure on the reading comprehension skills of second and third grade students with disabilities. Three participants in Grade 3 and two participants in Grade 2 participated in this multiple probe, single-case design study. All five participants demonstrated reading comprehension difficulties. To address the challenges students with reading comprehension disabilities encounter, the study implemented an intervention that provided explicit strategy instruction of description text structure.

In each session, participants read an expository text, completed the eight-item multiple-choice comprehension test, and retold the information from the reading. Analyses indicated that using visual analysis and percentage of non-overlapping data (PND), three students with LD in Grade 3 increased the number of correct answers for the multiple-choice comprehension tests after the training phase. Again, for the retell tasks, two participants with learning disabilities (LD) in Grade 3 demonstrated increased

number of information and better retell quality. However, the data of a participant with intellectual disabilities (ID) and one with emotional disturbance (ED) in Grade 2 did not demonstrate a functional relationship after the training sessions. Results indicated that explicit description text structure instruction that incorporated reading strategies before, during, and after reading was effective for third grade students with LD. However, its effectiveness for second-grade students with other disabilities was less clear and needs more study. Social validity data from interviews with the participants and casual conversations with their teachers was also documented. Implications of the practice, limitations of the research, and suggestions for future research were discussed.

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# Chapter 1: Introduction

Reading, an activity consisting of understanding written texts (Cline, Johnstone, & King, 2006), enables us to preserve knowledge and to communicate beyond space and time. In order to preserve and transfer knowledge, it is crucial that every citizen learn to read and write. Generally speaking, most children acquire reading skills in school. In fact, learning to read and comprehend written texts is one of the most important skills children learn in school (National Institute of Child Health and Human Development, 2000, p. 4-1).

A major goal of reading is to comprehend the meaning of written text. Comprehension is "the process of simultaneously extracting and constructing meaning through interaction and involvement with written language" (The RAND Reading Study Group, 2002, p. 11). Based on this definition, reading has three dimensions: the reader, the text, and the action. In other words, the act of reading is an interaction between the reader and the text under a broader sociocultural context. The act of reading is complex; the readers' reading capacities, their background knowledge, the level of text difficulty, and genre all affect the process (Lipson & Cooper, 2002; The RAND Reading Study Group, 2002).

Of these three dimensions, an often-discussed dimension is the text and the characteristics of the text, (e.g., types of text, text difficulties, genre). Educators of beginning readers often distinguish between two major types of texts, narrative (literary) and expository (informational), when they discuss written works. Although some texts

have narrative and expository features, the two types of texts are distinct from each other in their purpose and organization (Lipson & Cooper, 2002; Weaver & Kintsch, 1991). Examples of narrative texts are stories, novels, or tales. Expository texts include news articles, instructional manuals, social studies and science textbooks, and technical reports. The purpose of narrative texts is to entertain or to inform readers with stories. Narrative texts typically share similar features such as setting, characters, one or more problems, events, and an outcome/solution to the problem(s). The structure is often referred to as story grammar or story structure (Gersten, Fuchs, Williams, & Baker, 2001; Lehr, 1987; Lipson & Cooper, 2002). Expository texts differ from narrative texts in their purpose. Expository text conveys information, compares and contrasts facts, or provides explanations (Lipson & Cooper, 2002; Weaver & Kintsch, 1991). Researchers have found that the distinct features inherent in narrative and expository texts require students use different skills to comprehend them. Best, Floyd, and McNamara (2008) found that third-grade students comprehend narrative texts more successfully than expository texts and that they use different skills for comprehending different types of text. For example, decoding skills are highly correlated with successful recall of narrative texts, whereas word knowledge contributes extensively to comprehension of expository texts. In addition, Eason, Goldberg, Young, Geist, and Gutting (2012) concur and add that comprehending expository text requires higher-level cognitive skills.

## EDUCATIONAL STANDARDS FOR STUDENTS WITH DISABILITIES

Recently, at the national level, more emphasis has been placed on the use of expository texts in elementary schools. In 2009, the National Assessment of Educational Progress (NAEP) revised the reading assessment framework to balance literary and informational texts in fourth grade (50% literary, 50% informational) and increase the emphasis on informational texts in subsequent grades (55% informational texts in eighth grade, 70% informational texts in twelfth grade) (National Assessment of Educational Progress, 2010). The National Governors Association Center for Best Practices and Council of Chief State School Officers incorporated the NAEP 2009 framework into Common Core State Standards (CCSS). CCSS is a set of guidelines and standards for language arts (including history/social studies, science, and technical subjects) and mathematics from kindergarten through 12$^{th}$ grade. Besides incorporating the NAEP 2009 framework, CCSS also incorporated college and work expectations, and evidence-and research-based studies (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010). CCSS listed reading standards for literary texts (e.g., story, drama, poetry), informational texts (e.g., nonfiction, science, history, technical materials), and basic reading skills for students in grades K–12. As early as K to second grade, students are expected to answer questions from informational texts, identify reasons to support points the author makes, and identify text structures such as similarities and differences or compare and contrast. By the end of second grade, students are expected to read and comprehend informational texts. Similar guidelines can also be found in the Texas Essential Knowledge and Skills (TEKS, Texas Education Agency,

2012) chapter 110 on English Language Arts and Reading. Second-grade students are expected to read and comprehend expository texts, identify the main idea, and locate the facts in assigned texts (TEKS §110.13(b)(14)(A)(B)).

The importance placed on expository texts has affected every student from kindergarten through 12th grade, including students with disabilities. Since the Education for All Handicapped Children Act (PL 94-142, now IDEA) was passed in 1975, children with disabilities are entitled to be placed in the least restrictive environment (LRE). In the last twenty years, students with disabilities have been increasingly placed in general education settings with specialized instruction, or pull-out services for their individual needs (McLeskey, Landers, Hoppey, & Williamson, 2011). According to national data on student placement, 94.8% of students with disabilities were placed in regular schools in fall 2009. Most of them (60.5%) were in general education classrooms for more than 80% of their school time (National Center for Education Statistics, 2012). Being placed in general education classrooms allows students with disabilities to access core curriculum and educational programs (McLeskey & Waldron, 2011). Additionally, they are expected to meet state requirements (Baker & Zigmond, 1995; Thornton, Hill, & Usinger, 2008).

However, most students with disabilities do not perform as well as their peers. For example, the 2011 Nation's Report Card in Reading (National Center for Education Statistics, 2011) reported that the average score for students with disabilities was 186, whereas the average score for students without identified disabilities was 224. In addition, 68% of students with disabilities performed below basic in NAEP assessment, more than twice of the students without disabilities in the below basic status (30%). The

situation is desperate for students with disabilities, considering the data provided by the Nation's Report Cards.

## CHALLENGES FOR STUDENTS WITH DISABILITIES ON EXPOSITORY TEXTS

Students with disabilities encounter more challenges than their typically developing peers when reading expository texts, especially students identified with LD (Englert & Thomas, 1987). The unfamiliar content, the density of vocabulary, and the variety of structures are major roadblocks for the successful comprehension of expository texts (Martin & Duke, 2011). In particular, students' limited ability to detect text structure makes comprehending expository text difficult (Englert & Thomas, 1987). Working memory deficits impede students' ability to process new information in the text and integrate it with background knowledge (Fletcher, Lyon, Fuchs, & Barnes, 2007). In addition to the difficulties with comprehension, students with LD consider themselves to be less competent than their typical classmates when they encounter scientific reading materials (Carlisle & Chang, 1996). This could potentially decrease their engagement in reading expository articles. The scarcity of informational text instruction in early elementary grades also affects students' exposure to expository texts and contributes to their unfamiliarity with the expository texts (Duke, 2000; Ness, 2011). The challenges become greater as they progress into advanced grades when expository reading requirements increase.

## EFFORTS TO IMPROVE READING COMPREHENSION FOR STUDENTS WITH DISABILITIES

Research studies over the past fifty years have enhanced the field's knowledge of effective reading comprehension interventions that improve the reading comprehension of students with disabilities. Reading research with students with intellectual disabilities (ID) revealed that students with moderate or significant intellectual disabilities benefitted from systematic instruction and fading. However, the only comprehension strategy the students were taught was how to answer questions (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006). Reading intervention studies for students with emotional disturbance or at-risk for it, revealed limited information on effective reading comprehension strategies for students with ED (Benner, Nelson, Ralston, & Mooney, 2010; Riverta, Al-Otaiba, & Koorland, 2006).

On the other hand, effective strategies for students with LD have been well researched (Berkeley, Scruggs, & Mastropieri, 2010; Gajria, Jitendra, Sood, & Sacks, 2007; Gersten et al., 2001; Kim, Linan-Thompson, & Misquitta, 2012; Kim, Vaughn, Wanzek, & Wei, 2004; Mastropieri, Scruggs, Bakken, & Whedon, 1996; Sencibaugh, 2007; Solis et al., 2011; Swanson, 1999; Talbott, Lloyd, & Tankersley, 1994). Strategies found to be effective include a) cognitive strategies that help students actively monitor comprehension (e.g., identify main idea, text structure, cognitive mapping), and b) content enhancements that utilize explicit recognition of text structure to aid understanding (e.g., graphic organizers, visual displays) (Vaughn, Gersten, & Chard, 2000; Gajria et al., 2007). Overall, syntheses of effective reading comprehension interventions for K–12 students with LD yield medium to large effect sizes (*ES* = 0.65 –

2.11). However, most of the syntheses did not disaggregate results by text types (i.e., narrative or expository) or grade level (i.e., elementary or secondary). Few syntheses disaggregated data by text type in their analysis: Mastropieri et al. (1996, p. 213) found that intervention effects for narrative texts was .82, expository texts was 1.07, and unspecified passage type was 1.10. Gersten et al. (2001) utilized descriptive analysis and discussed narrative or expository intervention studies separately. They found that the use of comprehension strategy was effective across both text types (i.e., narrative and expository).

Only one synthesis exclusively discussed studies with expository texts (Gajria et al., 2007). Their findings suggest that students with LD can be successful in reading expository texts, whether content enhancements or cognitive strategy instruction is used as the intervention. Analyzing 29 intervention studies targeting expository text type for K–12 students with LD, Gajria et al. (2007) separated the effects for content enhancement and cognitive strategies on the expository reading comprehension of students with LD. The effect sizes reported for content enhancement (*mean ES* = 1.06) and cognitive strategy (*mean ES* = 2.07) were both substantial. This finding suggests that both strategies were effective and that the decision of which instruction to use should be based on available resources and students' learning goals. However, the effectiveness of interventions for young students was undetermined because studies included only participants in grades 4–12.

Lo (2012) also reviewed expository text intervention studies for students with LD but narrowed the scope to elementary level (K–6). Ten studies investigating reading

comprehension of expository text for students with LD from grades 4–6 were reviewed because no studies with participants in K–3 were found.

Findings from Lo (2012) revealed that nine out of ten studies on expository text reading comprehension used cognitive strategies to improve the reading comprehension of students with LD. Effective interventions included teaching students self-questioning and self-regulating strategies (Chan, 1991; Mason, Snyder, Sukhram, & Kedem, 2006; Nelson et al., 1992), critical thinking skills (Darch & Kame'enui, 1987), reading comprehension skills (Alexander, 1985; Englert & Mariage, 1991), CSR (Collaborative Strategic Reading) (Klingner, Vaughn, Arguelles, Hughes, & Leftwich, 2004), reciprocal strategies (Lederer, 2000), and graphic organizers (Stagliano & Boon, 2009). There is only one study (Stagliano & Boon, 2009) that utilized a single cognitive strategy (e.g., graphic organizer that assists students to identify text structure and identify main idea). There are several benefits to using a single cognitive strategy to facilitate learning expository text material, and one of them is time efficiency (Gersten et al., 2001). All of the reviewed studies demonstrate medium to strong effects in assisting students with LD improve their comprehension when reading expository texts, except for the Klinger et al. (2004) study. However, there are multiple factors that may have mitigated the effects for students with LD in this study, such as an inadequate intervention level for students with LD (two 25–45 minute sessions per week), and the variability of teacher implementation. The review also found that studies in small and homogenous groups or even one-on-one instruction have a greater impact on student outcomes. Although the above interventions suggest positive outcomes for students with LD, there is more to consider when

implementing them with younger students (e.g., second-grade students with LD). Some instructional interventions might not be feasible or difficult to implement with younger students. For example, they might not be able to learn multiple comprehension strategies and apply them in a short amount of time. Therefore, single strategies, such as teaching text structure, might be more feasible and time efficient.

## STATEMENT OF THE PROBLEM

Given that students with disabilities are expected to read and understand the same expository texts as their peers, they require more support and earlier intervention to be successful. Although numerous research studies demonstrate the effectiveness of cognitive reading instructions, few focus on students with disabilities in early grades (i.e., second and third grade) (Gajria et al., 2007; Lo, 2012). In addition, with the increased use of expository text to learn information, a study aiming to improve students with disabilities' comprehension of expository text is viable.

## PURPOSE OF THE RESEARCH

The purpose of this study was to examine whether text structure instruction can have a significant impact on the comprehension outcomes of second or third-grade students with disabilities. The study was designed to teach one text structure of the expository text to students with disabilities who experience reading comprehension difficulties and to facilitate participants' comprehension and recall. The investigator used decodable readers from the Reach for Reading program (2011) published by National

Geographic School Publishing as texts. Participants were first trained on elements of expository text structure, identification of the components of description text structure, and then organization of the main idea and detail information.

**Research Questions**

The study addressed the following research questions:

1. What is the effect of description text structure training on multiple-choice comprehension test scores of second and third-grade students with disabilities?

2. What is the effect of description text structure training on information recall task scores of second and third-grade students with disabilities?

3. What is the perception of second and third-grade students with disabilities toward description text structure instruction?

# Chapter 2: Literature Review

"Most human knowledge is embodied in text, and most information transfer is through the medium of text" (Britton, Glynn, & Smith, 1985, p. 2).

In this chapter, the investigator will lay out the theoretical foundation for teaching text structure. Three sections will be included in the chapter. First, cognitive theory of schema that supports the framework of this expository text structure study will be presented. Then, the focus will shift to describe the five basic types of expository text structures, signaling, and visual representation of text structures. Last, intervention studies that employed expository text structure will be presented and discussed.

## THEORETICAL FRAMEWORK ON TEACHING TEXT STRUCTURE

The theoretical framework for teaching text structure to facilitate comprehension of readers is grounded in cognitive psychologists' view of human development and learning. Reading (expository text, especially) is a cognitive demanding process. Therefore, employing cognitive strategies to reduce the cognitive load needed to process information, frees up cognitive capacity for comprehension (Britton et al., 1985).

### Text Structure as Schema

British psychologist Sir Frederic Bartlett first used schema to represent "an active organization of past reactions, or of past experience" (Bartlett, 1932, p. 3). However, most people associate the term with Jean Piaget's cognitive theory that includes schema, assimilation and accommodation, and developmental stages (McLeod, 2009). Piaget's

view of schema posits that it is the basic building block of intelligence and a way to organize knowledge—knowledge about concepts, objects and their relationships with other objects, situations, events, and actions (McLeod, 2009). For example, the schema of a bird is an animal that has feathers, wings, a beak, and can fly. A person who has the schema of a bird would recognize a bird when he/she sees an animal that matches his/her schema of a bird.

Since schemata are ways people organize knowledge, authors of written texts also use them to organize information. Narrative and expository texts have unique features. Narrative text schema consists of setting, characters, one or more problems, events, and an outcome/solution to the problem(s) (Gersten et al., 2001; Lehr, 1987; Lipson & Cooper, 2002), whereas expository text schema might have a compare/contrast, problem/solution, cause/effect structure, or a combination of several structures. Text structures represent the underlying logical thinking of the author (Meyer, 1985). If readers can identify the authors' organization of the text, less effort is required to understand and remember information authors are trying to convey (Meyer, 1985).

**Text/Prose Structural Analysis**

Meyer (1975b) and Kintsch & van Dijk (1978) were among the first psychologists to analyze the structure of expository text. They developed approaches to analyze text with a hierarchical text structure. Even though Meyer and Kintsch have slightly different approaches to analyzing prose (Meyer, 1985; Kintsch, 1998), they each made fundamental contributions to instruction of text structure. In particular, Meyer took the

work of linguists Charles J. Fillmore and Joseph E. Grimes on syntax and constructed a systematic way to identify the content and logical relation of text. Empirical studies of text structure suggest that structure influences the reader's mental representation of text, makes comprehension of the text easier, and assists a more detailed recall of the information (Meyer, 1985, 2011). Skilled readers can often detect authors' organization of the text structure (Meyer, 1985). However, because text structure is not natural to some readers, especially young readers who experience difficulties in reading, it has to be taught explicitly (Meyer, 2011; Williams, 2005).

According to Meyer (1985), the three primary levels of expository text are (1) the sentence, also called the microproposition level; (2) the logical organization and argumentation of the text, or the macropropositional level; and (3) the overall organization of the text, or the top-level structure. The following section presents the five text structures at the third level of expository text, which is the top-level structure. The top-level structure is discussed in detail here because it guides retrieval of information.

**Five Text Structures**

Text structure, as Meyer (1975a, 1985) described, is the top-level organizational pattern used by authors to organize their texts. Five basic types of text structure have been identified: description, sequence, comparison, causation, and response (Akhondi, Malayeri, & Samad, 2011; Meyer, 1985; Meyer, Brandt, & Bluth, 1980). Most researchers agree that these five text structures describe the relationship of information.

Some would add collection as another text structure and classify sequence as a subtype of collection (Meyer, 1985; Meyer & Ray, 2011).

In the following section, the five basic text structures and correspondent examples that have been described in Akhondi et al. (2011), Meyer (1985), and Meyer and Ray (2011) will be presented.

Authors use description structure to describe a topic, an object, or related ideas. Description structure has hierarchical level. That is, the attribution, settings, and features that are used to describe a topic are subordinate to the topic. For example, an article describes camels living in the desert. The topic, or the main idea, would be how camels live in the desert. The subordinate level of supporting details includes features of a desert, what camels are, and features of camels that adapt to the extreme habitat.

Sequence structure is often referred to a time-ordered collection of events or ideas. Authors use chronological order to list items or events. The most common application is recipes for cooking. Most history textbooks or biographies follow the time sequence.

Comparison structure is the structure that authors use to compare two or more events, topics, or objects that have similarities and differences. For example, articles comparing bugs and insects, or comparing the educational systems between the United States and Canada use comparison structure.

Causation structure is often used to describe casual relationship between activities, events, or instructions. The relationship under the causation text would include an antecedent (or several antecedents) and consequent (or several consequents). The most

common application would be articles from economic or science texts, such as articles on causes and resolutions of global warming.

The last text structure is response. Authors use a problem-and-solution structure to post questions and provide answers. The organization includes two parts: the problem (or the question) and the solution (or the answer) in response to the problem. Authors of popular science articles, medical information, or how-to articles often use response structure in the organization.

Further, on Meyer's (1985) three-level expository text model (micropropositions, macropropositions, and top-level structure), the macropropositions level deals with the relationship between sentences or paragraphs, whereas the top-level structure relates to the overall structure of the text. Relationships at the macropropositions level can be description, sequence, compare-and-contrast, cause-and-effect, and problem-and-solution. The top-level contains the five relationships described above (description, sequence, comparison, causation and response). Meyer (1985) also indicates that multiple relationships and structures in the macroproposition level can exist under a top-level structure. More structures in the macropropositions level would increase the complexity of an article. An example would be the text structure of an article on solar energy (top-level: description) is simpler than the text structure of an article on energy shortage and solar energy solution (top-level: response, macropropositions: description, causation).

**Signaling (Signal Words, Clue Words)**

Signaling can assist readers in identifying the top-level text structure of expository texts. Meyer et al. (1980) studied how 102 ninth-grade students with good, average, and poor comprehension responded to signaled and un-signaled articles. Students read resolution structure (problem-and-solution) articles written with signaling and without signaling. They found that good and average readers comprehend and recall articles with or without signaling. However, poor comprehenders benefitted from signaling; their comprehension of the article and information recalled was better when reading articles with signaling. See Table 2.1 for the signal words suggested by Meyer & Ray (2011) and Meyer (2011).

Table 2.1

*Common Signal Words*

| Expository Text Structure | Signal Words |
|---|---|
| Description | for example, is like, such as, including |
| Sequence | first, second, third, next, then, since, previously, steps |
| Compare and contrast | instead, on the other hand, compare, in contrast |
| Cause and effect | cause, led to, because, reasons, why, if/then, so |
| Problem and solution | Problem: problem, trouble, difficulty, need to prevent<br>Solution: solve, in response, recommend, answer, because |

**Visual Display of Text Structure**

Another approach used by teachers to help students comprehend text is the use of visual displays to represent the structure of the text (Akhondi et al., 2011). Since text

structure is a mental representation of knowledge, it is logical that charts or diagrams could be used to provide concrete representations of text structures. Graphic organizers or diagrams can be used to represent the relationship among the pieces of information in the text (e.g., Armbruster et al., 1987; Williams, Hall, & Lauer, 2004). See Appendix A for visual displays that represent each text structure. In fact, instruction on visual displays has strong evidence for improving comprehension for students with mild disabilities, including students with LD and ID (Dexter & Hughes, 2011; DiCecco & Gleason, 2002; Kim et al., 2004).

## INTERVENTION STUDIES ON TEACHING TEXT STRUCTURE

After Meyer (1975b) and Kintsch & van Dijk (1978) set the groundwork for analyzing text structure, many researchers developed interventions to teach students to recognize and use text structure to better comprehend reading material such as science or social studies textbooks. Instruction on text structure has not only benefited school-age students, but also college students (Cook & Mayer, 1988) and English as second language (ESL) learners (Carrell, 1985). In the next section, intervention studies that utilized text structure instruction to assist older students with LD (grades 4-8) and younger students (grades K-3) comprehend text are reviewed. The section starts with interventions for older students because they are the focus of previous investigation. Studies that taught expository text structure to younger students with disabilities are unavailable; therefore, studies for typical elementary students or young at-risk readers are discussed.

**Older Students with Disabilities Learning Text Structures**

A number of researchers have examined the effect of text structure instruction (Armbruster, Anderson, & Ostertag, 1987; Bakken, Mastropieri, & Scruggs, 1997; Lovett et al., 1996). Text structure instruction was more effective than the traditional instruction in each of the three studies.

To investigate the effect of text-structure training on fifth-grade students reading social study passages with problem-and-solution structure, Armbruster, Anderson, & Ostertag (1987) conducted an experimental design study comparing text-structure training to a traditional instruction condition. Two remedial classes were randomly assigned to a text-structure strategy group or a traditional instruction group. Students in both groups read thirteen 100–500-word problem-and-solution passages during 11 days of intervention. In the text-structure training group, the researchers explicitly taught the group to use a researcher-designed diagram, which consisted of three black boxes labeled problem, action, and results. Students in the traditional instruction condition received the same passage, but instruction did not change. Results indicated that the text-structure training group wrote 50% more macrostructure (top-level structure) ideas than the traditional instruction group in answering short-answer questions. Students in the text-structure training group also wrote more important information units than traditional instruction group on the summarization measure. Further analysis revealed that training on text-structure strategy was effective for all levels of reading ability groups (high, medium, low). Although the study's experimental design is limited with only two classes, it provided valuable information that text-structure training increased students'

comprehension and maintained more information than students in the traditional instruction group.

Similarly, text-structure strategy instruction was more effective than traditional instruction in the study conducted by Bakken et al. (1997). In addition, Bakken and colleagues intended to investigate if text-structure is more effective than paragraph restatement strategy, a strategy that is often used by teachers. Therefore, they recruited fifty-four eighth graders with LD, randomly assigned them into three groups: text-structure strategy, paragraph restatement, and traditional instruction to read passages that contain main idea (description), list (collection), and order (sequence) text structure science articles. After three days of instruction, they found that students who were instructed with the text-structure strategy program recalled more central (top-level structure) and incidental information than the traditional instruction group. They also found that the text-structure strategy group recalled more central information than the paragraph restatement group. The text-structure group maintained the performance in a delayed recall task two days after the intervention. In addition, the effect also transferred to uninstructed passages on social studies for the text-structure group.

Text-structure instruction was also compared to reciprocal teaching and traditional instruction in Lovett et al. (1996) study. Forty-six seventh and eighth-grade students with reading disabilities or difficulties were randomly assigned to three groups (1) Text Content and Structures, (2) Strategy Reciprocal Teaching, and (3) a control condition (classroom survival skills) to investigate students' use of comprehension strategies and level of content comprehension. The text content and structure program

was designed to train students' awareness of text structure and organize the content from the instructed text with direct instruction. Students were taught idea mapping techniques, paragraph functions in a text (e.g., introductory, transitional), text structures (e.g., chronological, cause-effect), and signal words. The Strategy Reciprocal Teaching program employed the reciprocal teaching techniques and focused on the explicit training of comprehension strategies: summarizing, questioning, clarifying, and predicting. After 25 one-hour sessions, students were tested on their knowledge of comprehension strategies, ability to analyze text structure, and standardized measures (e.g., WRAT-R reading). Results indicated that students in both the Text Content and Structure program and the Strategy Reciprocal Teaching program outperformed the control group on comprehension strategies, content comprehension, and analysis text structure. The comprehension strategies' effects were also generalized to uninstructed text. The results also indicated that only the strategies taught during the intervention (e.g., summary, questioning for SRT program; analysis text structure for TCS program) showed significant difference from the control group.

**Younger Students Learning Text Structures**

Recent interventions with younger elementary students have focused on typical students or students at risk of academic failure. Williams and her colleagues serve as the main force behind this renewed interest in teaching text structure (Meyer & Ray, 2011). Much of their work has focused on teaching expository text structure instruction to

elementary students of early grades, especially in second grade (Williams et al., 2004; Williams et al., 2005; Williams et al., 2007; Williams et al., 2009).

Williams et al. (2004) found that second graders at risk for academic failure are sensitive to text structure. They examined students' comprehension of informational texts presented by different text structures. Informational reading texts were presented using narrative structure in one group, and textbook structure in another. They found that text structure, content familiarity, and reading comprehension ability affected outcome performance. They also found that students extracted more information when the text was presented with familiar structure, which was narrative structure.

Next, Williams et al. (2005) developed and implemented a text structure program to improve second-grade students' comprehension of expository text. In the text structure program, they focused on a single structure: compare and contrast. They also placed emphasis on content learning, meaning that they taught five classes of vertebrates (mammals, birds, fish, reptiles, and amphibians) in the intervention texts. Instructional components of the program included teaching clue words, discussing trade books, reviewing vocabulary, analyzing, using graphic organizers, asking compare and contrast questions, summarizing, and reviewing the overall text. One hundred twenty-eight second-grade students in 10 classrooms were randomly assigned to three conditions: text structure, content only, and no instruction by class. Students in the text structure received the text structure program. Students in the content only classes read the same paragraphs and texts provided to the text structure program. The instruction components were similar to the text structure program, except that they took out the text structure and clue word

components. The intervention was 15 sessions, and classroom teachers taught two sessions per week. Results were positive, indicating that second-grade students who were taught text structure learned more content information from expository texts than students who only provided content knowledge. In addition, the effect transferred to uninstructed passages (near transfer). In their further analysis, the program was also effective despite students' reading abilities (i.e., high, medium, and low).

Their next study focused on another text structure: cause and effect (Williams et al., 2007). In this study, 243 second-grade students were randomly assigned to three conditions (text structure, content only, and no instruction) by classroom. The material was taken from biographies, trade books, and specially constructed cause-and-effect target paragraphs at a second to third-grade readability level. The procedure was similar to that employed in the previous studies. Instruction included text structures, clue words, vocabulary, read-aloud and discussion, cause-and-effect questions, graphic organizers, and comprehension questions. The content only group received similar instruction but not the text structure components. The no instruction group served as the control group. Results showed that the text structure group outperformed the no instruction group on almost all measures (content questions, vocabulary definitions, noncausal questions, and effect questions). However, the transfer effect (students read novel feature and content) only observed in the effect questions measure.

An extension of the previous studies achieved two goals (Williams et al., 2009). One was to replicate a previous study (Williams et al., 2005), and the second was to revise the Text Structure Program. The 215 second-grade students who participated in

this study received the revised text structure program, the content only program, or no instruction. The revised text structure program added seven sessions to the previous program. They have successfully replicated their previous study by showing that students in the text structure program outperformed students in the no instruction group. Further, the outcome of content measures of the text structure group was similar to the content only group, indicating that students in the text structure group learned content as well as text structure. The study was also modified to place more emphasis on writing and the outcome of written summary measure. They also demonstrated transfer on authentic text and briefly instructed pro-con structure, which was not evident in their previous study (Williams et al., 2005).

## SUMMARY

From the theoretical background and research review presented, text structure instruction appears to be an effective approach for increasing students' comprehension of expository text, content knowledge, and text structure awareness as measured by various outcome measures. However, studies of text structure interventions to date have only included typical and at-risk second-grade students and older students with LD. The text structures used in these intervention studies were limited to solution, causation, and comparative structures. The present study was designed to address gaps in the literature. Hence, the investigator examined the effectiveness of a description text structure intervention on second and third-grade students' reading comprehension.

# Chapter 3: Method

## Overview of the Study

Students with disabilities are often held to the same academic expectation as their typically developing peers as many of them are instructed in general education classrooms. Given the emphasis on reading comprehension of narrative and expository text, students with disabilities should receive instruction that is effective in improving their comprehension of expository text. This study employed a single-case design using multiple probes across participants. The purpose of this study was to investigate whether description text structure instruction had an effect on the reading comprehension of second and third-grade students with disabilities. Three specific research questions guided this study. They are:

1. What is the effect of description text structure training on multiple-choice comprehension test scores of second and third grade students with disabilities?

2. What is the effect of description text structure training on information recall task scores of second and third-grade students with disabilities?

3. What is the perception of second and third-grade students with disabilities toward description text structure instruction?

## Setting

The study took place in an elementary school located in a predominately rural school district near a fast growing city in a Southern state of the United States. The

district data in 2013–2014 school year indicates that the total enrollment in six elementary schools, two middle schools, two intermediate schools, and three high schools was 9575 students. The total enrollment at the elementary school in which the study took place was 677 students, of which 73.56% of the students were Hispanic/Latino, 21.86% were Caucasian, and 2.95% were Black/African American. Students eligible for special education services represented 11.25% of student enrollment and students eligible for free or reduced-price meals consisted 86.12% of student enrollment of the school.

## PARTICIPANTS

### Selection Process

To ensure that the students participating in the study were the most appropriate, the investigator employed a multi-step process to identify participants. First, the investigator contacted several principals in the district and informed them of the goals of the study, research questions, and selection criteria. A meeting was set with the principal who expressed interest to further explain the research design, intervention materials, selection criteria, and schedule. After the meeting, the principal emailed her second and third-grade teachers for a list of potential participants who met the selection criteria. The selection criteria at this stage were students identified by special education teachers as having reading comprehension difficulties, and reading must be identified as an area of improvement in their IEP (Individualized Education Program) goals. Next, the teachers sent consent and assent forms home (in both English and Spanish) to obtain parental

consent from the potential students (See Appendix B for student assent form and Appendix C for parental permission form in English).

Six students who met the initial criteria returned the permission forms. Next, potential participants were administered the Nonsense Word Fluency (NWF) and Oral Reading Fluency (ORF) subtests of the DIBELS (Dynamic Indicators of Basic Early Literacy Skills, 6th Edition). NWF is not required for second-grade and third-grade students in the middle of the year, because students should have developed this skill. However, this measure was administered to determine whether students had the ability to decode. To be included in the study, the potential participant's DIBELS NWF score must be in the emerging (30–49) or established (>50) range while his/her ORF score was in the at-risk range (<51 for second-grade students; <66 for third-grade students), which demonstrated severe reading difficulties in decoding fluency and comprehension (Fuchs, Fuchs, Hosp, & Jenkins, 2001; Kim, Wagner, & Foster, 2011). All six students met the criteria however, one student was withdrawn by his parent after the second week; therefore, his data is not included. Table 3.1 provides demographic information for the remaining five students. Considering the high percentage of Hispanic population in the school, participants are not representative of the school population. Since having English as the participant's first language was a criterion for participation, Hispanic students with disabilities whose first language was not English were excluded.

Table 3.1

*Participant Demographic Information*

| Name | Grade | Age | Ethnicity | Eligibility | Services Received (years) | DIBELS NWF/ORF |
|---|---|---|---|---|---|---|
| Brian M. | 3 | 9 | Caucasian | LD, SI | Reading, Math, Math Calculation, Language Arts (1) | 49/21 |
| Casey N. | 3 | 9 | Caucasian | LD, SI | Basic Reading, Written expression, Math calculation, Problem solving, Fine motor skills (1) | 43/28 |
| Frank V. | 2 | 8 | Hispanic | ID, SI | Reading, Math, Speech (2) | 34/21 |
| Pam R. | 3 | 9 | Caucasian | LD, SI | Reading, Speech, Language Arts (1) | 48/36 |
| Stan C. | 2 | 8 | Caucasian | ED | Reading, Math, Behavior, Language Arts (2) | 60/26 |

*Note*. Student names are pseudonyms; LD = learning disabilities; SI = speech impairment; ID = intellectual disability; ED = emotional disturbance.

All students received pull-out, individual special education reading services from a special education teacher. Frank V., Casey N., Brian M., and Pam R. had the same special education teacher, Mrs. S. Stan C. had Mrs. A. as his special education teacher. Mrs. S. used Project Read® as her intervention material and Mrs. A. utilized Reading A-Z© materials for reading instruction. Regarding intensity of the reading intervention, Frank V. met with Mrs. S. twice a day, five days a week, whereas Casey N., Brian M., and Pam R. met with her once a day. Stan C. met with Mrs. A. about 45 minutes per week for reading intervention.

## DESIGN

Multiple probe design is a variation of multiple baseline design (Kennedy, 2005) in which two or more baselines are established simultaneously. After the baseline indicates a stable trend, the independent variable is introduced sequentially within baselines. A single-case multiple probe design across participants was chosen as the most applicable for the study and its participants because it does not require data points to be taken during each session for each tier. Since the participants of this study were students who had experienced academic difficulties, a continuous baseline involving reading and answering questions might increase students' frustration and decrease their motivation. Another benefit of multiple probe design is that it saves time and effort in the experimental series while maintaining sufficient sensibility to the change in student outcome measures (Horner & Baer, 1978).

In the baseline condition, the investigator replicated typical practice, that is, without intervention or training on expository text structure. After the training sessions, the investigator sought to demonstrate the functional relation (or causal relation) of the intervention. Staggering four or more phases to demonstrate functional relation is desirable to establish repetition of the experimental effect. In addition, more phase replications increase the power of the statistical test (Kratochwill et al., 2010). The present study was designed to reflect these practices and demonstrated the phase repetition of functional relation by five participants.

## MATERIALS

Thirty-two reading texts were selected from second-grade decodable readers (Read on Your Own©) from the Reach for Reading© program (National Geographic School Publishing, 2011). The decodable readers were chosen for three reasons. First, students would be able to read them on their own. Second, even though the texts were decodable, the topics varied and the content was interesting. For example, topics ranged from animals in the ocean, to building a neighborhood garden, and the three states of water. Furthermore, each reading contained photographs related to the content (e.g., tree frogs, ice, glass squid). A sample page of the decodable reading (Desert Sun) is presented in Figure 3.1.

Each reading had approximately 100-350 words (average 229 words), averaging 25 sentences per reading. All readings were checked by the Flesch-Kincaid Grade Level readability test to minimize differences in text difficulty among readings. The formula for the Flesch-Kincaid Grade Level score was: (.39 x ASL) + (11.8 x ASW) – 15.59, where ASL = average sentence length (the number of words divided by the number of sentences), and ASW = average number of syllables per word (the number of syllables divided by the number of words). The average readability of the Read on Your Own readers on Flesch-Kincaid Grade Level is 1.28 (range 0.5–2.8). Text structures, complex words, possible unknown words, number of signal words, complexity of the text, explicitness of main ideas, and explicitness of supporting details of the readers were entered in a spread sheet to analyze and ensure they were comparable. The 32 texts

selected were arranged from easy to difficult. Though text difficulty was controlled with care, the topic of each text was not.

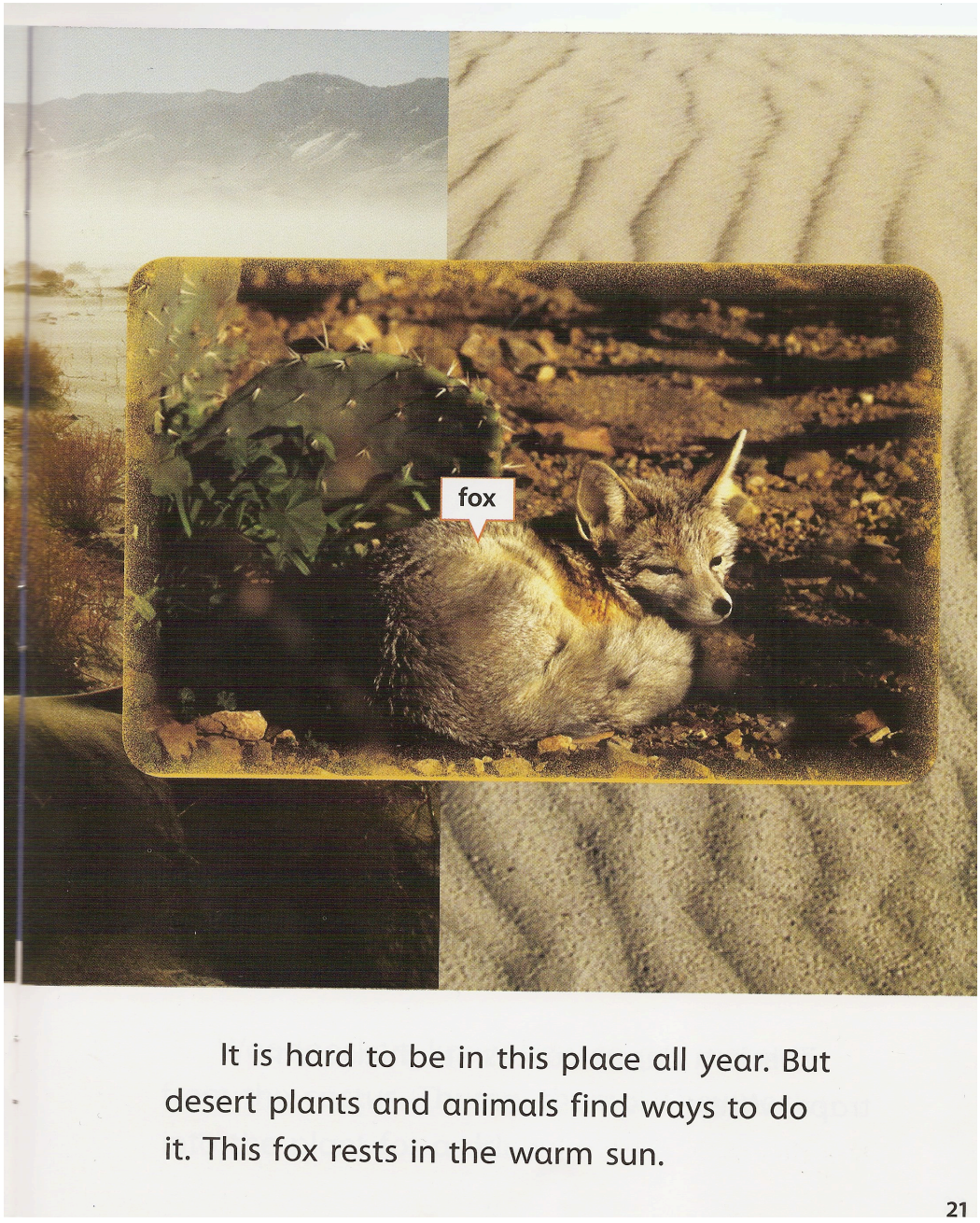



Figure 3.1. Sample page of "Desert Sun"

## THE INTERVENTION FOCUS

The present study used description text structure as the intervention focus. Description is an unequal structure that describes a topic, an object, or related ideas (Akhondi, Malayeri, & Samad, 2011; Meyer, 1985; Meyer et al., 1980). The description structure is a basic text structure and is widely used. Common signal words for descriptive text include: for example, is like, such as, including, that is (Meyer, 2011; Meyer & Ray, 2011). The visual display for it was a web with the main idea in the center connected with lines to related ideas or details that are on the outside. For each reading, the author constructed eight comprehension questions based on the reading content to test students' comprehension. See Appendix D for an example for one reading text (Tree Frogs).

There were two major treatment components of the intervention: the description text structure instruction and explicit and systematic teaching. Description text structure instruction was one of the cognitive strategies that had large effects for students with LD (aggregated *ES* = 1.83, Gajria et al., 2007) and struggling students (Williams et al., 2009).

The first essential treatment component was to illustrate how a text structure is "hidden" in the text to participants and to demonstrate how they can detect structure by considering relationships between information units. Description text structure is a basic structure that contains a hierarchical relationship. Therefore, participants were constantly reminded to decide which information is more important (or "bigger") than the others. Furthermore, the investigator demonstrated and taught participants to create a graphic organizer as a tool to assist their understanding of the text.

Second, the investigator incorporated explicit and systematic teaching to assist participants in learning how to use text structure. The bulk of the research on reading instruction suggests that explicit and systematic teaching is effective for both struggling students and students with LD (Rupley, Blair, & Nichols, 2009; Gajria et al., 2007; Gersten et al., 2001). The explicitness of instruction assisted participants to learn with a clear goal in mind. During the three training sessions, the investigator connected their prior knowledge with new materials, provided ample support during instruction, provided guided practice, and provided independent practice with feedback. The investigator intentionally put more teacher-lead instruction at the beginning of the training phase, and then shifted to independent practice. The investigator also adjusted pacing according to the individual participant's responses.

## MEASURES

### Reading Comprehension Measures

Two comprehension measures were used to assess participants' comprehension of the text after reading: an eight-item multiple-choice comprehension test and an oral retell task. These measures were considered near measures because they measure information pertaining to the text they read. In addition, participants were asked to create a graphic organizer on a blank piece of paper.

### *Comprehension Questions*

Immediately after reading, participants completed an eight-item comprehension test specifically designed for each reading. The researcher-designed measure consisted of multiple-choice questions, with one correct answer and three distracters. Participants were allowed to refer to the reading and notes or the organizer while they completed the comprehension test. Comprehension questions assessed the following: main idea; detail information; word meaning; and who, where, when, what, why, how questions. The main idea and detail information questions were designed to test students' ability to detect and answer top-level structure questions and its supporting details. Word meaning and six W questions targeted students' understanding of the content. The investigator randomly picked two readings and gave the questions to an experienced teacher who had more than five years of teaching experience in elementary schools. The final comprehension questions were adjusted with her suggestions. An answer key for each test was available for scoring. On average, students took 4–10 minutes to complete the test. The score for the reading comprehension test was the percentage of correct responses on the test. For example, if the participant answered seven correct items out of eight, the percentage of correct responses was 88%. See Appendix H for an example of the eight-item multiple-choice comprehension test on Tree Frogs.

### *Oral Retell*

Immediately after the multiple-choice test, the participant was prompted to recall information from the reading. To be consistent across participants and phases, questions

were restricted to: "*Tell me, what is the reading about?*" When the student stopped, the researcher prompted him or her by asking, "*Can you tell me anything else?*" (Klingner, 2004) to allow participants to give every possible answer. The oral retells were audio recorded and transcribed verbatim. Two samples of the oral retell transcripts are provided in Appendix K.

The oral retell tasks were scored in four ways to determine participants' understanding of the text and information retained immediately after reading: the percentage of main ideas, the number of information units, total words, and the quality of retell. Information units are the smallest units of knowledge that can stand-alone. A unit can be a word or a phrase (Kintsch & van Dijk, 1978). Information units are categorized as either high or low level. A high-level information unit usually represents main ideas or the topic of the text, the first indicator of the retell task (i.e., Main Idea). A low-level information unit represents details or supporting information to the main idea, the second indicator of the retell task (i.e., Information Unit). The investigator composed the main idea/information unit list for each reading text. Main ideas were counted if participants recalled the main ideas pertaining to the text. To calculate percentage of main ideas, the investigator took the number of main ideas the participant recalled, divided by total main ideas of the reading, and multiplied by a hundred. Information units were only counted if participants recalled specific elements from the reading. Raters only counted units that appeared in the information unit list of each text (see Appendix I for an example). Words or phrases having the same or similar meanings to the words or phases provided on the information sheet were counted. Repeated information units were counted if they were

repeated meaningfully. On average, each reading contained 59.33 information units (range: 31–84).

The number of total words was the third indicator used to score the retell task. The number of total words indicated how many words participants recalled. When scoring total words, raters counted words pertaining to the reading text. Participants' experience, or utterances that were not related to the text, were not counted.

Retell quality was the last indicator and an overall rating on the quality of the oral retell task. The rater read the transcripts of the oral retell tasks and rated them with score from 1 to 5, based on the retell quality rubric. A score of one meant that the participant recalled one or two words. The content of recall was inconsistent and does not make sense and it might not be relevant to the topic or main ideas of the article. A score of five indicated that the participant retold the content in complete sentences consistently and coherently. Participants used common sense or background knowledge to connect with learned knowledge. They recalled facts based on the topic or main ideas of the article. See Appendix J for the complete scoring guide.

### *Graphic Organizer*

In each session throughout the study, participants received a piece of blank paper and were asked to write down information and organize it to assist their comprehension of the text. A comparison of student-created graphic organizers before and after training was utilized to assist the investigator to understand how students perceived the text. Additionally, participants were given the choice to create a graphic organizer on paper or

in their mind. The results of the graphic organizers were not scored by an answer key, but analyzed qualitatively.

## Social Validity

**Student interview.** Social validity is an important element of single-case design (Horner et al., 2005). It can be obtained by emphasizing socially important dependent variables; demonstrating that the independent variables can be implemented by typical implementers, or in a variety of contexts; and demonstrating that implementers report the procedures to be acceptable/feasible, and they will continue to use them (Horner et al., 2005). The investigator intended to emphasize social importance by implementing description text structure and use materials obtained in the classroom (i.e., commercially developed reading programs). Since the intervention of the present study was on academic achievement, the perception of participants was valued. Five open-ended questions designed to elicit participants' perceptions of the text structure strategy were administered after the intervention phase. The interview questions were designed to elicit participants' utility of the intervention, their perception of the intervention, and their intention to continue using the strategies learned. The specific interview questions were:

1. What do you think about the training on using text structure to understand and remember information from the reading?

2. What do you think about searching for the signal words?

3. What do you think about using the graphic organizer to organize information?

4. Will you keep using the strategies you learned?

5. Do you want to learn more text structures?

The investigator administered the questions, using a digital voice recorder to record all interviews. Later, the investigator transcribed the audio recordings verbatim and analyzed them.

**Informal conversations.** Informal conversations with participants' teachers were initiated before and after the intervention. Information the investigator wished to gather included participants' reading comprehension performance in class, incidents that might influence participants' intervention, and participants' performance in class after intervention. The informal conversations were not tape recorded, but field notes were taken after the conversation took place.

## PROCEDURE

Before the study began, DIBELS was administrated to determine students' eligibility. All participants were eligible to participate because they had an NWF score in the range of emerging or established and their ORF score was in the at-risk range, which demonstrated severe reading difficulties in decoding fluency and comprehension.

The study consisted of four phases: baseline, training, intervention, and maintenance. All four phases had similar procedure in each session. In a session, the investigator gave the participant one expository text, and he/she read the text. After reading, he/she completed the comprehension test and completed the retell task. A total of 30 articles were developed for the study. Each session lasted 25–35 minutes. The study was conducted over 15 weeks, and participants received approximately three sessions per

week. The study was conducted in classrooms or office spaces where the least interruption would occur. All sessions were one-on-one (i.e., one student and the investigator). The investigator served as the implementer in the baseline, training, intervention, and maintenance phases. The investigator has over eight years of teaching and research experience in special education.

All participants entered the baseline phase at the same week. When the first participant demonstrated a stable trend in the baseline, the training phase was initiated. All sessions were implemented individually. Casey N. and Frank V. went into the training phase at the same time because their reading comprehension scores and retell performances both demonstrated a stable trend. Brian M. entered the training phase after Casey N. demonstrated a stable trend in the intervention phase. Stan C and Pam were the last participants to enter the training phase. Stan C. was absent several sessions because of his behavior issues, so he was intervened with last. The variability of Pam's data was great; therefore, she was intervened last as well.

The investigator was aware that prior knowledge and student preference might be a confounding variable. Therefore, in each session, the investigator asked the participants "*Do you know anything about ____ (topic)?*" before they begin to read to elicit their prior knowledge on the topic. The information was later used as a reference to determine if and how prior knowledge, or lack of it, might affect participants' performance.

**Baseline Phase**

During baseline, participants were given an article and a piece of blank paper. They were told to read the article orally or silently and to write notes on the blank paper as they read to assist comprehension. After completing the reading, the participants were asked to answer the eight-item comprehension test pertaining to the reading. When they completed the test, the text and comprehension questions were taken away. They were then prompted to recall information from the text with the following statement, "*Tell me, what is the reading about?*" The average time spent during each session in the baseline phase was 25 minutes.

**Training Phase**

As each participant demonstrated a steady trend in the baseline, he/she was trained on the use of description text structure to increase comprehension. The training phase consisted of a minimum of three consecutive sessions to introduce students to text structures, the difference between narrative and expository structures, and how to use the targeted structure (i.e., description) to understand text. The investigator conducted three 35-minute training sessions with each student.

The training sessions employed explicit teaching and gradual release of support (Pearson & Gallagher, 1983). These intervention features have been found to be effective for students with LD (Gersten et al., 2001). The goal of the training phase was to train students to identify the main idea and supporting details of the description structure text and to use an organizer to organize information independently.

The first session was an introduction to text structures of expository text. This session provided a brief overview of text structure, difference between narrative and expository structures, and focused on the description structure. As Williams et al. (2009) pointed out, an introduction linking narrative text to expository text is beneficial for second-grade students because it helps them discern the difference between the two types of texts. The five expository text structures were introduced but were not described in detail.

When introducing the description text structure, the investigator taught participants how to identify signal words in the text, find the main ideas of the text, and use a graphic organizer to organize information from the text. The integrated three-step reading strategy used was: 1. (Before reading) Think about what I already know, 2. (During reading) Search for signal words and organize important information, and 3. (After reading) Check to see if I understood; if not, go back and read again. See Appendix E for a copy of the student handout.

After the introduction, the implementer and the student read an article together, identified signal words, and created an organizer for the text. The graphic organizer was introduced as a tool and one example of how to organize text information to aid comprehension and memory of the text. After reading together, the student was given the eight-item comprehension test to answer. The oral retell task was administered after he/she completed the comprehension question test.

The second training session began with a review of the first training session. The implementer shared the scored test from the previous reading with the participant and

taught them how to do an organizer. Then, the investigator reviewed the concepts of description text structure and asked students to repeat in their own words. Then, the investigator presented a new reading and assisted the student as he/she located and organized main ideas and supporting details into an organizer. Participants completed the comprehension test and oral retell task on his/her own.

In the last session of the training phase, the student was asked to explain what a text structure was and what a description structure was. In this session, participants performed most of the task independently. Therefore, the implementer presented the reading and asked the student to read it. Participants read the text and complete the comprehension test with minimal support.

The exit criterion for the training phase was met when participants obtained two data points over 60% correct on the comprehension tests. Except for Frank V., all participants exited the training phase after they obtained two data points over 60% out of three data points. Frank V. continued to receive intensive support until he demonstrated two consecutive data points over 60% correct on the comprehension tests (session #18).

**Intervention Phase**

After completing the training sessions, participants transitioned into the intervention phase. Participants in the intervention phase first received a review of the previous reading. Each session began with the investigator showing the student his/her comprehension questions and a discussion of the correct answers. The investigator also reviewed the graphic organizer that they made (if there was one). After the review, the

participant was given a new reading and a blank piece of paper. He or she was instructed to read the text, encouraged to write information on the blank piece of paper, and directed to answer the eight-item comprehension test. Although there was no time limit on reading the text, students took approximately 30 minutes to review, read the material, finish the eight-item comprehension test, and conduct the oral retell task.

**Maintenance Phase**

The purpose of the maintenance phase is to determine whether the participant learned the strategy and was able to apply it two weeks after the completion of the last data point of the intervention phase. To determine whether the participant maintained the skills taught, two readings were administered in the same week. The procedure for the maintenance phase was the same as the intervention phase.

**Implementation Fidelity**

A fidelity checklist (see Appendix G) was developed to monitor fidelity of the implementation across participants in all four phases. Fidelity of implementation data was collected in each phase by three observers. All three observers had at least three years of experience working in education research or classrooms. Observations occurred in about 25% of the sessions. The investigator introduced the observer of the session to the student and explained to him/her that the observer was here to observe the investigator. Implementation fidelity was calculated by adding all ratings for observed items and divided by the total score possible, then multiplying by a hundred.

**Controlling Threats to Internal Validity**

Campbell and Stanley (1963, cited in Christ, 2007) identified eight threats to the internal validity of experimental or quasi-experimental design: history, maturation, testing, selection, instrumentation, mortality, statistical regression, and interactions between threats. The threat of history refers to events outside of the intervention that may influence results. The threat of maturation indicates the outcome might result in developmental growth of participants. The threat of testing indicates improvement of scores might result in participants' exposure to the same test. The threat of selection refers to selecting bias when choosing participants. The threat of instrumentation refers to the lack of reliability or consistency of measurement of the dependent variable. The threat of mortality, also known as attrition, refers to the result may be affected by participant dropout. The threat of statistical regression refers to the tendency for extreme values to move toward typical levels over repeated assessments. Finally, the threat of interactions between threats is self-explanatory, meaning the threat might be a combination of some or all of the above threats (Kratochwill et al., 2010). Some threats to internal validity are not applicable to the present study, (i.e., the threat of selection and the threat of statistical regression). The present study intended to eliminate other threats to internal validity by informal observation and conversation with participants' teachers to detect incidents that might influence the intervention (history), keeping text difficulty level and content familiarity equal across all reading materials (instrumentation), and building rapport with participants and their teachers (mortality). The nature of multiple probe design eliminates some threats to internal validity. The repeated assessment across phases and participants

eliminates the threat to testing, and the short period of intervention phase eliminates the threat to maturation.

**Inter-rater Agreement**

The investigator graded all the comprehension tests and coded all oral retell transcripts. A second coder, unfamiliar with the research design, was invited to code 10% of the eight-item comprehension test and 33% of oral retell transcripts. She is a graduate student with over three years experience working and researching in the field of special education. Currently, the coder is a graduate student in the Department of Special Education seeking a Master's degree. The total agreement method was used to calculate the inter-rater agreement of the investigator and the coder by taking items that were marked by raters with agreements and dividing by total items. For example, in the oral retell tasks, both raters agreed on 24 information units, but do not have agreements on 6 information units. Therefore, the total agreement was 24 divided by 28 and times a hundred, 85.71%.

The investigator and the rater used the same materials (i.e., comprehension tests, answer keys, student transcripts, main ideas/ information units, and retell quality rubric) to score the measures. The inter-rater agreement for the eight-item, multiple-choice comprehension test was 90%, and was improved to 100% after discussion. The inter-rater agreement for the oral retell tasks was 75.71%, and was improved to 81.35% after discussion, which met the evidence standards provided by Kratochwill et al. (2010).

## ANALYSIS PROCEDURE

Visual analysis and effect size (i.e., percentage of non-overlapping data (PND)) were used to analyze data from the eight-item comprehension tests and oral retell tasks. Interview data was analyzed qualitatively.

### Visual Analysis

In single-case design studies, "data are collected, information is graphed and analyzed on a continuous basis unit the experiment is completed" (Kennedy, 2005, p. 191). The data collection and analysis were an ongoing process. Decision-making was often based on the data collected at the moment. Graphing data is essential to single-case design studies. The present study collected and graphed data using a Microsoft© Excel application. The scores of the eight-item multiple-choice reading comprehension test were entered after every session. In examining if a functional relation has been established, Kennedy (2005) and Kratochwill et al. (2010) suggest analysis of the following six features: (1) level, (2) trend, (3) variability, (4) immediacy of the effect, (5) overlap, and (6) consistency of data patterns across similar phases. For the present study to demonstrate functional relation, the mean scores of baseline should be lower than the mean score of intervention phase (level). The trend line of the intervention phase should be going up (trend). The range of highest and lowest data points in the intervention phase should be smaller than that of the baseline phase (variability). The data points after training sessions should show immediate increase (immediacy of the effect). There should not be a lot of overlap data between baseline and intervention phases (overlap).

Comprehension and recall scores in the baseline phase across participants were expected to be low, and the scores were expected to be high in the intervention phases across participants (consistency of data patterns).

**Effect Sizes**

Effect sizes were calculated and are presented using PND for the scores of the multiple-choice comprehension tests and the retell tasks. Means and standard deviations were also calculated for four indicators of the retell tasks to demonstrate level change and variability for different phases.

PND is a well-known statistical analysis used to determine the effectiveness of an intervention. Scruggs and Mastropieri (1998) recommend the use of PND because it is an easy way to synthesize single-case studies. Additionally, the interpretation of results using PND is simple and intuitive (Campbell & Herzinger, 2010). For example, a PND score of .66 or 66% is in the range of debatable effectiveness. A PND score of .95 or 95% suggested the intervention is very effective. PND was calculated by taking points in the intervention phases that were higher than the highest data point on the baseline phase, divided by total data points in the intervention phases, then multiplied by 100%. Effect sizes of .90 and greater suggest a very effective treatment, effect sizes of .70–.89 indicated moderate effect, effect sizes of .50–.69 were in a debatable range of effectiveness, and effect sizes of less than .50 were not effective (Scruggs & Mastropieri, 1998).

**Analysis of Student Interviews**

Student interviews were administered at the last session of the intervention phase. Each participant was interviewed individually by the investigator and recorded with a digital voice recorder. Then, the investigator transcribed all five interviews, which were then summarized by each interview question. See Appendix L for Brian's interview transcription as an example.

# Chapter 4: Results

This study examined the effects of description text structure instruction on students' reading comprehension using a multiple-probe, single case design. Five participants in one elementary school were recruited to participate in the study. All sessions in four phases (i.e., baseline, training, intervention, and maintenance) were conducted individually. Each session lasted approximately 30 minutes. Two measures were administrated in every session: an eight-item, multiple-choice comprehension test and an oral retell task. An interview was administrated at the end of the intervention phase to obtain information on the effectiveness and students' perceptions on the training.

The results are organized in the following four sections:

1. Visual analysis and experimental effects of PND of the eight-item comprehension are calculated and analyzed.

2. Results of each of the four oral retell tasks indicators: main ideas, information units, total words, and overall retell quality is presented in a line graph and analyzed visually. Experimental effects of PND are calculated and analyzed as well.

3. Results from student interviews and informal teacher talks are presented.

4. Fidelity results are presented, including implementation fidelity and scoring fidelity.

### EIGHT-ITEM, MULTIPLE-CHOICE COMPREHENSION TESTS

Percentage correct score results for the eight-item comprehension tests are presented in Figure 4.1. Throughout the study, the eight-item comprehension tests served as the main reference for decision making to move participants to the next phase, because they were easier to score than the retell tasks. Therefore, it served as a good indicator after every session.

## Visual Analysis

Following the analysis plan stated in the previous chapter, the data was examined with visual analysis to determine if a functional relation has been established (Kennedy, 2005; Kratochwill et al., 2010). The investigator first examined individual students' results on six features (i.e., level, trend, variability, immediacy of the effect, overlap, and consistency of data patterns across similar phases), and then examined overall results.

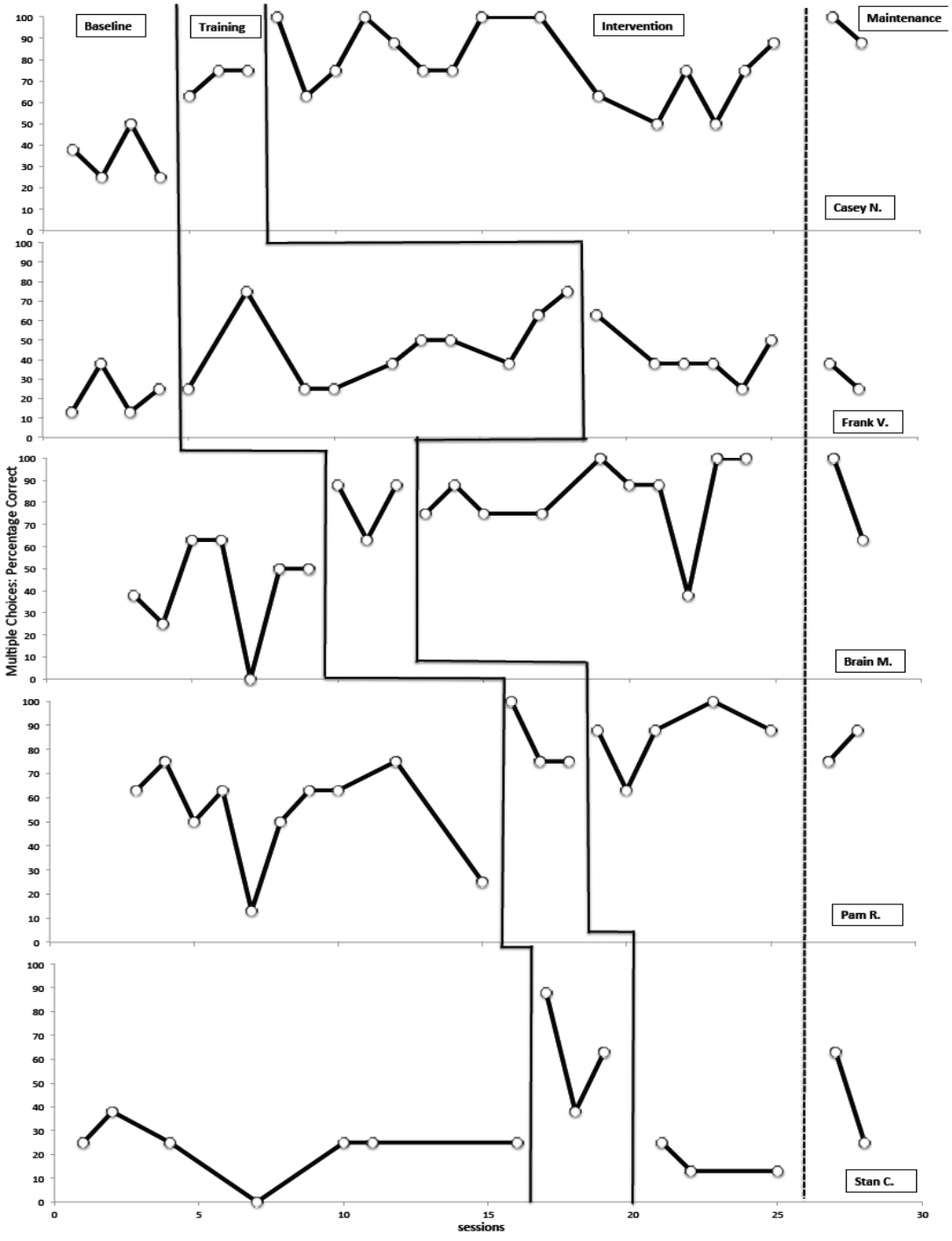



Figure 4.1. Percentage scores on eight-item comprehension tests

***Casey N.***

Casey N. demonstrated an obvious level change from the baseline phase to the intervention phase. Her baseline average was 34.5% (about three out of eight items correct) and 78.47% correct (about six out of eight items correct) in the intervention phase. She performed increasingly better when she went into the intervention phase. Although she experienced a downward trend after session #17, the trend went up again toward the end of the intervention phase. Variability in the intervention phase was larger than in the baseline phase. There was overlap between the baseline and the intervention phase. From the visual analysis, Casey N. improved after the training phase and her data demonstrated a functional relation had been established.

***Frank V.***

Frank V. received seven more sessions in the training phase than all the other students because he did not met the exit criterion of obtaining two data points over 60% correct on the comprehension tests. When examining Frank's data, the level of the intervention phase did not change significantly compared to the level of the baseline phase. The average score was 22.25% in the baseline phase (about two out of eight items correct); and the average score was 42.00% in the intervention phase. The trend went down from sessions #19–24 in the intervention phase and went up slightly from sessions #24–25. The variability during the intervention phase was greater than it was during the baseline phase. His data did not show an immediate increase after the training phase. In

addition, scores in the intervention phase overlapped with scores in the baseline phase. There was no functional relationship change observed in Frank's data.

***Brian M.***

In Brian's case, the average score doubled when he moved from the baseline phase (41.29%) to the intervention phase (82.70%). The trend during the intervention phase was clearly going upward, if session #22 was excluded. In session #22, he showed signs of tiredness probably due to insufficient sleep (Field Notes: Brian 5/13/2014). The variability was larger in the baseline phase than it was in the intervention phase. Brian M. demonstrated immediacy of effect in the training phase, but not obvious in the first few sessions of the intervention phase. The overlap of data was minimal between the baseline and the intervention phase. During two sessions he did not use an organizer. When asked why he did not organize the information, he replied that he wanted to do an organizer in his brain. The investigator asked about this in the interview, which will be discussed later. Overall, Brian M. responded to the training very well.

***Pam R.***

Pam R. was one of the last two participants to receive training. She demonstrated the highest baseline scores (54.00%). However, the variability in the baseline phase was greater than it was in the intervention phase. She demonstrated immediate gain in the training phase, and the trend went down in the first two sessions but went up stably afterwards in the intervention phase. Her average score in the intervention phase was

85.40%. She also did not have a lot of overlapped scores between the baseline and the intervention phases. The data demonstrated that a functional relation had been established.

***Stan C.***

Stan's level during the intervention phase was lower than his level during the baseline phase. Stan C. was easily affected by his emotions and had to stop a session or skip sessions because of his behavior issues. He was not very confident with reading and his decoding speed was slow. That was one of the reasons why he chose to read silently. There was not much variability in both baseline and intervention sessions. However, Stan C. responded to the training sessions better than the other sessions. It might be that the training materials were easier, and the investigator gave more support and attention in the training phase than in the other phases.

The results of all eight-item comprehension tests indicated the levels of the first four students (Casey N., Frank V., Brian M., and Pam R.) were higher in intervention sessions than in baseline sessions, but Stan C.'s were lower in the intervention sessions. Table 4.1 presents the average percentage correct on the eight-item comprehension tests for each student in the four phases.

Table 4.1

*Average Scores on Eight-item Comprehension Tests*

| Student | Baseline Avg. | Training Avg. | Intervention Avg. | Main. Avg. |
|---|---|---|---|---|
| Casey N. | 34.50% | 71.00% | 78.47% | 94.00% |
| Frank V. | 22.25% | 46.40% | 42.00% | 31.50% |
| Brian M. | 41.29% | 79.67% | 82.70% | 81.50% |
| Pam R. | 54.00% | 83.33% | 85.40% | 81.50% |
| Stan C. | 23.29% | 63.00% | 17.00% | 44.00% |

*Note*. Avg. = average; Main. = maintenance.

The scores of Casey N., Brian M., and Pam R. went upward, but Casey N. experienced a slow decrease in sessions #17–19, then an upward trend toward the end of the intervention phase. Brian M. had one dip in the data; however, it was due to tiredness he experienced before the session. Frank V. spent a longer time in the training phase with maximum support and exited the phase after sessions #18. However, after session #18, he experienced a stable decrease after entering the intervention phase, where supports from the investigator also decreased. The results for Casey N., Frank V., and Brian M. demonstrated larger data variability in the intervention phase than in the baseline phase. Even so, their data in the intervention phase demonstrated higher levels than in the baseline phase. Brian M., Pam R., and Casey N. improved immediately in the training phase. Data examined across participants is consistent for all participants except Stan C.

In summary, the functional relationship of expository text structure training was established for Casey N., Brian M., and Pam R. when examining the level, trend,

variability, immediacy of the effect, overlap, and consistency of data patterns across similar phases. As for Frank V. and Stan C., the intervention was not effective.

**Effect Size Analysis**

The individual effect sizes for the eight-item comprehension tests in the intervention phase were calculated using PND. The PND for all five students was calculated by hand, taking points in the intervention phases that were higher than the highest data point in the baseline phase, divided by total data points in the intervention phases, then multiplied by 100%. The training phase was not calculated because the materials were easier and the implementer provided maximum support to the participants. The second column of PND presents the PND of the intervention phase and the maintenance phase. Participants did not perform well in the maintenance phase. The PND decreased when maintenance data was included. See Table 4.2 for individual PND.

Table 4.2

*PND on Eight-item Comprehension Tests*

| Student | PND | | |
|---|---|---|---|
| | T | I | I + M |
| Casey N. | 100.00% | 86.67% | 88.24% |
| Frank V. | 50.00% | 33.33% | 25.00% |
| Brian M. | 66.67% | 90.00% | 83.33% |
| Pam R. | 33.33% | 80.00% | 71.42% |
| Stan C. | 66.67% | 0% | 20.00% |

*Note*. PND = percentage of non-overlapping data; T = Training Phase; I = Intervention phase; M = Maintenance phase.

According to the data, Casey N., Brian M., and Pam R. demonstrated the most promising results, especially Brian M. in the intervention phase. Although, Stan (66.67%) benefitted from the training sessions, when the support was removed during the interventions phase, his scores reverted to baseline level. Similar effects were observed for Frank. Frank had more training sessions than the other participants because he did not meet the exit criteria. When he met the exit criteria and went into the training phase, his performance declined (PND = 33.33% for the intervention phase, 25% for the intervention and maintenance phase). The intervention was very effective for Brian M. (90.00%) and moderately effective for Casey N. (86.67%) and Pam R. (80.00%). Similar outcomes were identified when the maintenance data was counted. The data of Casey N., Brian M., and Pam R. indicated that the training remained moderately effective. However, Brian M. (83.33%) and Pam R. (71.42%) did not maintain as well as Casey N. (88.24%). When the maintenance data was counted, Frank V. and Stan C. were both in the ineffective range of effectiveness. The PND score of Stan C. went up to 20.00% compared to the PND of the intervention phase. The reason for such increase was the number of the intervention sessions was few (i.e., three sessions) and he had one data point in the maintenance phase above the lowest point in the baseline phase.

### ORAL RETELL TASKS: MAIN IDEAS, INFORMATION UNITS, TOTAL WORDS, AND QUALITY OF RECALL

An oral retell task was administered after participants read the text of the session and finished the eight-item, multiple-choice comprehension test. The scoring indicators

contained four parts: main ideas, information units, total words, and retell quality. The investigator used these four indicators to capture the participants' performance. The following results are reported first with visual analysis and then with effect sizes.

## Visual Analysis

### *Main Ideas*

Main ideas are higher-level information units pertaining to the essence of the article or text. By showing the percentage of main ideas, the reader would know how much higher-level information they have remembered and understand from the reading. Thus, the investigator examined the percentage of main ideas with visual analysis and calculated the effect sizes with PND for each individual participant.

The graph showing the percentage of main ideas mentioned was presented in figure 4.2. The means and standard deviations showing level and variability, respectively, were presented in table 4.3. The visual analysis suggested that only one out of five participants was able to identify more main idea units after training. Brian M. had higher level on the intervention phase ($M$ = 75%) than on the baseline phase ($M$ = 43%). His data also had an upward trend in the intervention phase. In the case of Casey N., the trend of her intervention data went downward, probably because of increasing difficulties of the texts. The variability in the intervention phases of Casey's data was higher than it had been in the baseline phase (Casey: 0.10 v. 0.24). It suggested that in the intervention phase, Casey N. was unstable in retelling main ideas. The immediacy of the effect was not present for most of the participants. Only Brian M. had immediate increase on the

percentage of main ideas recalled. The intervention phases of Frank V., Pam R., and Stan C. were overlapped with the baseline phases, indicating they did not make a lot of changes on the percentage of main ideas recalled after training. In the maintenance phases, all participants remained similar level comparing to the intervention phase, except for Stan who had a much lower percentage of main ideas.

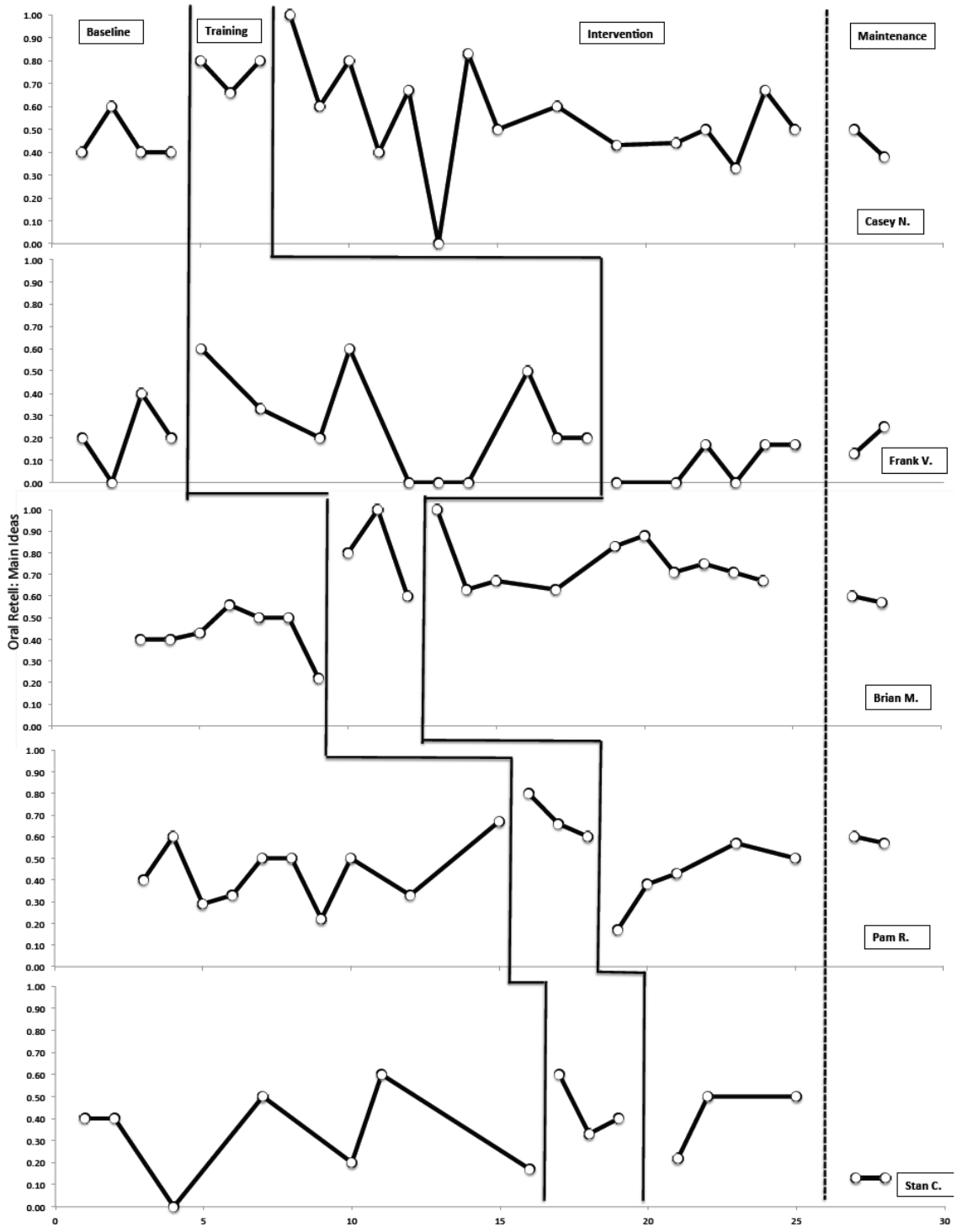



Figure 4.2. Oral retell tasks: Percentage of main ideas

### *Information Units*

Figure 4.3 provides data on information units. Data shows that two out of five students (i.e., Casey N. and Brian M.) had higher levels during the intervention phases than baseline phases. The mean of the intervention phase was higher than the baseline phase for all participants (Casey: 11.50 v. 15.93; Brian: 15.29 v. 28.90; Pam: 12.30 v. 14.00; Stan: 10.00 v. 15.67), except for Frank V. (7.75 v. 6.00). The trend was slightly upward for Casey N. and Brian M., but decreased at the end of the intervention phase. Similar to the results of main ideas, the variability of Casey N. and Brian M. was greater in the intervention phase than in the baseline phase. The standard deviations of Casey and Brian also support this observation (Casey: 1.29 v. 4.03; Brian: 3.35 v. 12.55). The immediacy of the effect was only observed in the result of Brian's intervention phase. Except for Brian M., all other participants had significant overlaps between the baseline phase and the intervention phase. In the maintenance phase, Frank V. and Pam R. had increased information units retained compared to their scores in the intervention phase.

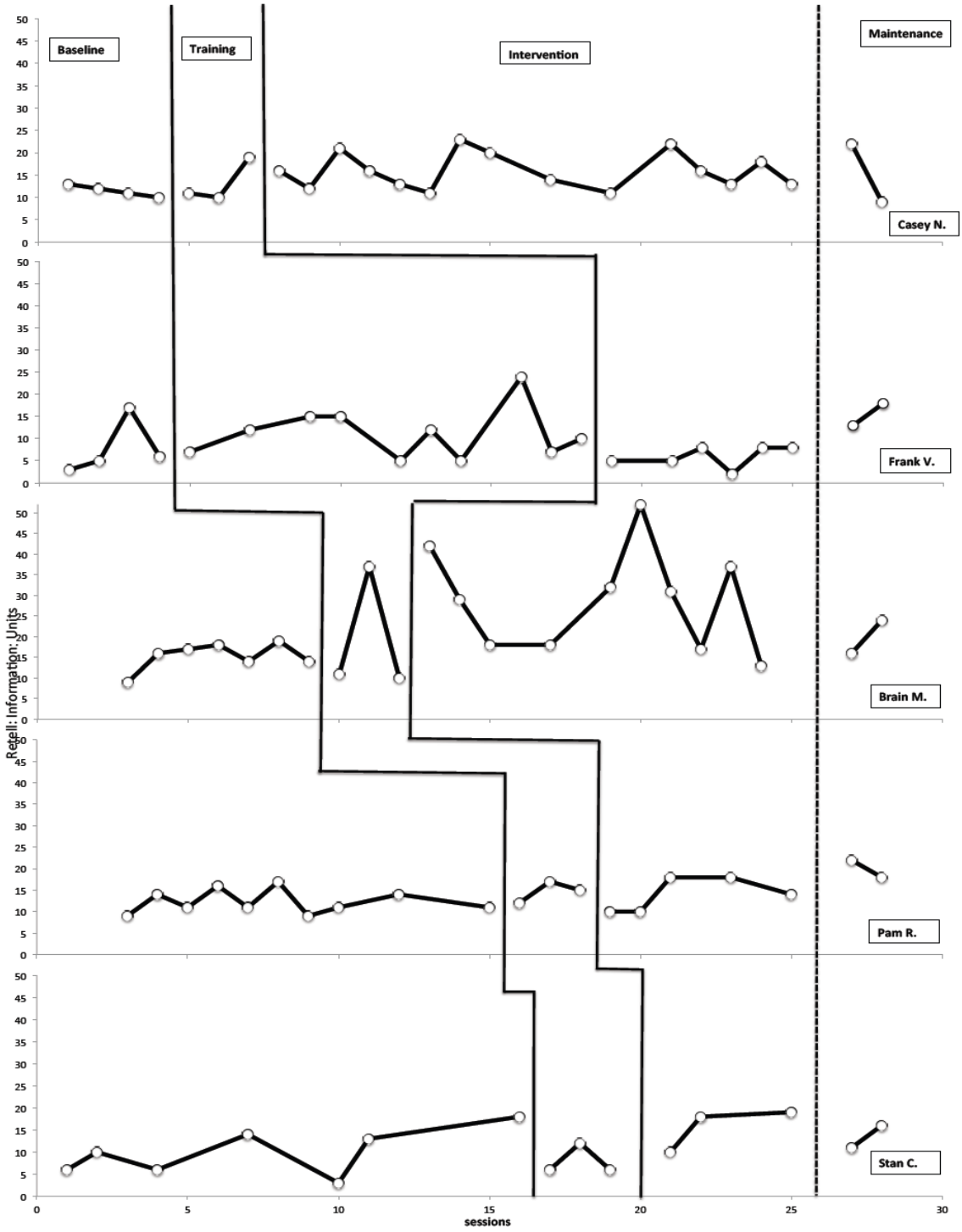



Figure 4.3. Oral retell tasks: Number of information units

### *Total Words*

Figure 4.4 presented the results for the number of total words retold by each participant. Examining the graph, Casey N., Frank V., and Brian M. uttered more words in the intervention phase than in the baseline phase. The means of the intervention phase were higher than those of the baseline phase (Casey: 41.50 v. 58.00; Frank: 24.75 v. 37.33; Brian: 64.14 v. 108.90; see also Table 4.3). The data of Pam R. and Stan showed the opposite (Pam: 72.20 v. 58.00; Stan: 65.00 v. 36.00). Pam R. was loquacious when taking the retell tasks, but mostly on her personal experience related to the texts. For example, when she read "Big City, Little Town," she talked about how her sister lives in a big city and she live in a small town. Therefore, many words were not counted. The data variability of Casey N., Brian M., and Pam R. were higher in the intervention phase than in the baseline phase, suggesting that participants might utter more words if they read familiar texts. Again, the immediacy of effect was only observed in Brian's data. Casey's and Frank's data showed slower increase. Except for Brian M., all the other participants had the intervention phase overlapped with the baseline phase. In the maintenance phase, Frank V., Pam R., and Stan C. maintained similar level compared to the intervention phase. Casey N. and Brian M. did not maintain similar total words as they had in the intervention phase.

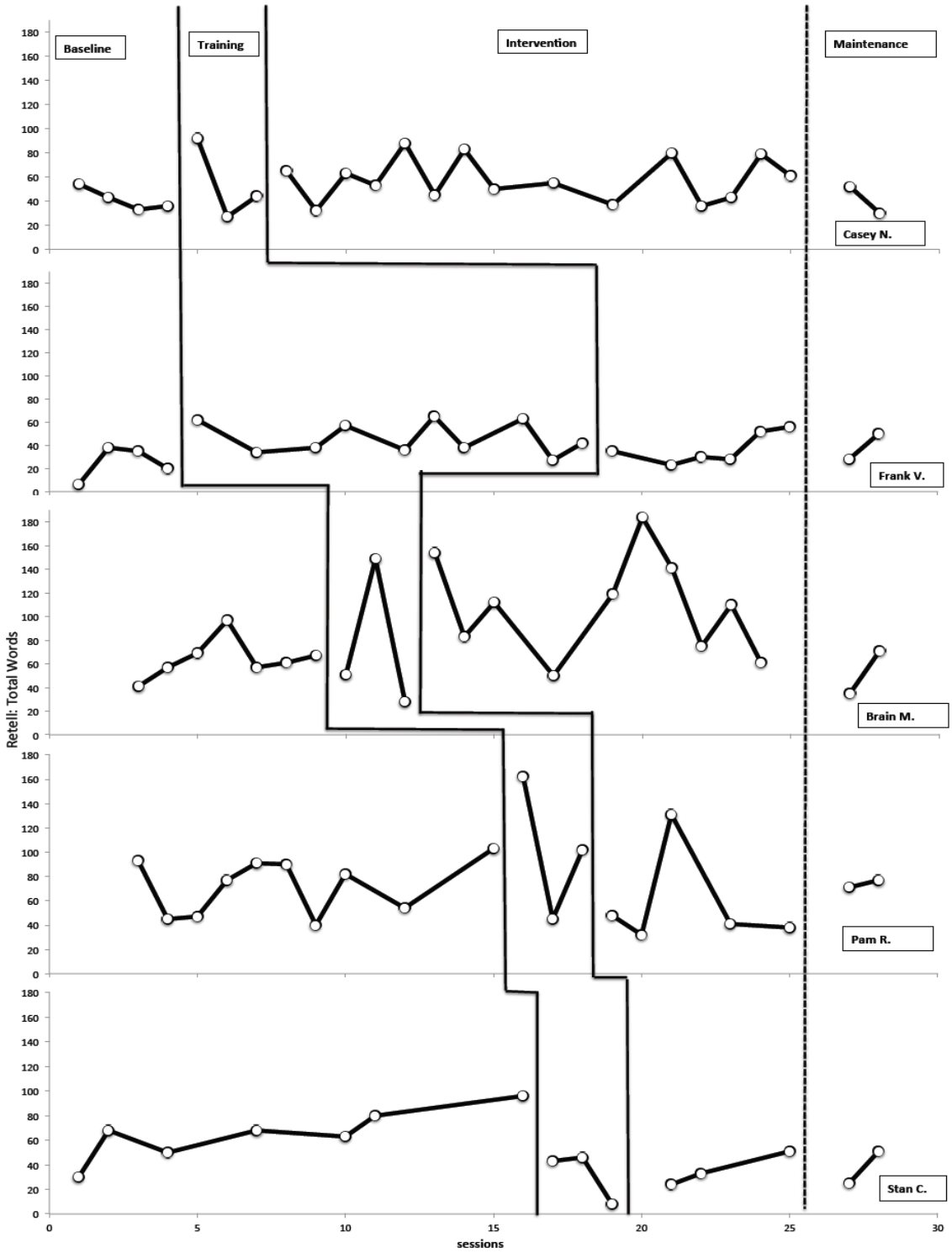



Figure 4.4. Oral retell tasks: Number of total words

***Retell Quality***

The data shown in Figure 4.5 indicated that Casey, Brian M., Pam R., and Stan C. had higher level of retell quality in the intervention phase. The mean retell quality scores for the baseline and the intervention phases of each participant were: Casey N. (2.00 v. 2.60), Frank V. (1.25 v. 1.17), Brian M. (2.14 v. 4.20), Pam R. (2.00 v. 2.60), and Stan C. (1.71 v. 2.67). Frank V. was a special case because his speech was a little hard to understand. For example, he said "fist" for "fish" and "cast" for "catch." The investigator needed to ask him again to verify understanding of what he said. Therefore, in his retells, it seemed like he was talking in words, not sentences. This resulted in low quality of his retell tasks. Casey, Brian M., and Stan's data trended upward, though they had higher variability in the intervention phases. Casey, Frank V., Brian M., and Stan C. increased one or more points after training compared to the last data point in the baseline phase. Casey, Brian M., and Stan C. did not have many overlap scores between the baseline and intervention phases. In the maintenance phase, all participants maintained similar retell quality as they were in the intervention phase, except Stan C. had lower scores.

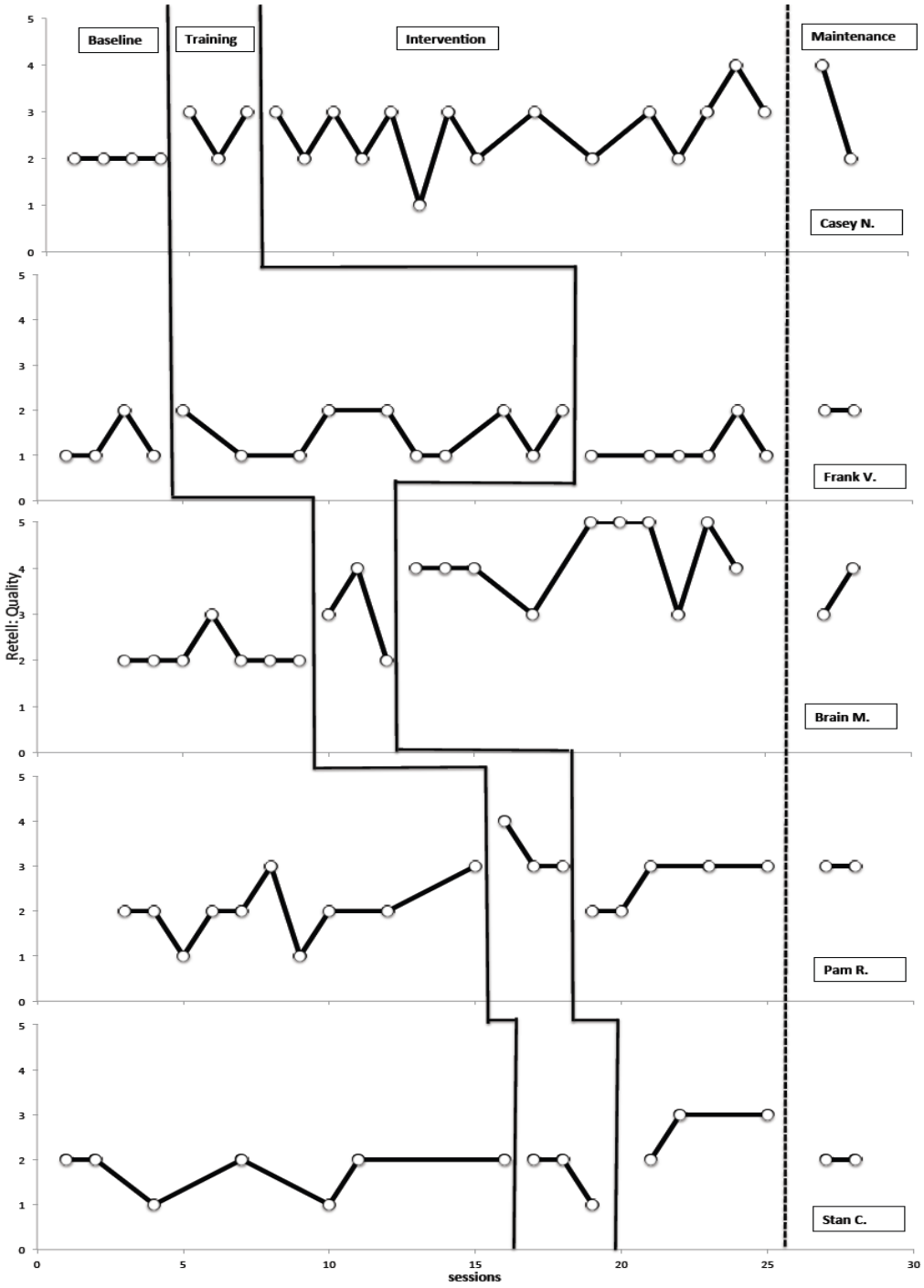



Figure 4.5. Oral retell tasks: Quality of retell

Table 4.3

*Mean and Standard Deviation on Four Indicators of Oral Retell Tasks*

| Indicator | | Baseline *M* (SD) | | Intervention *M* (SD) | | I + M *M* (SD) | |
|---|---|---|---|---|---|---|---|
| MI | Casey N. | 45% | (0.10) | 55% | (0.24) | 54% | (0.25) |
| | Frank V. | 20% | (0.16) | 9% | (0.09) | 11% | (0.10) |
| | Brian M. | 43% | (0.11) | 75% | (0.12) | 72% | (0.13) |
| | Pam R. | 43% | (0.14) | 41% | (0.15) | 46% | (0.15) |
| | Stan C. | 32% | (0.20) | 41% | (0.16) | 30% | (0.19) |
| IU | Casey N. | 11.50 | (1.29) | 15.93 | (4.03) | 15.88 | (4.41) |
| | Frank V. | 7.75 | (6.29) | 6.00 | (2.45) | 8.38 | (5.04) |
| | Brian M. | 15.29 | (3.35) | 28.90 | (12.55) | 27.41 | (11.99) |
| | Pam R. | 12.30 | (2.79) | 14.00 | (4.00) | 15.71 | (4.54) |
| | Stan C. | 10.00 | (5.32) | 15.67 | (4.93) | 14.80 | (4.09) |
| TW | Casey N. | 41.50 | (9.33) | 58.00 | (18.18) | 56.00 | (18.33) |
| | Frank V. | 24.75 | (14.77) | 37.33 | (13.53) | 37.75 | (12.88) |
| | Brian M. | 64.14 | (17.12) | 108.90 | (42.69) | 99.58 | (44.98) |
| | Pam R. | 72.20 | (23.37) | 58.00 | (41.21) | 62.57 | (34.59) |
| | Stan C. | 65.00 | (21.04) | 36.00 | (13.75) | 36.80 | (13.42) |
| RQ | Casey N. | 2.00 | (0.00) | 2.60 | (0.74) | 2.65 | (0.79) |
| | Frank V. | 1.25 | (0.50) | 1.17 | (0.41) | 1.38 | (0.52) |
| | Brian M. | 2.14 | (0.38) | 4.20 | (0.79) | 4.08 | (0.79) |
| | Pam R. | 2.00 | (0.67) | 2.60 | (0.55) | 2.71 | (0.49) |
| | Stan C. | 1.71 | (0.49) | 2.67 | (0.58) | 2.40 | (0.55) |

*Note*. *M* = mean; SD = standard deviation; I + M = intervention and maintenance; MI = main ideas; IU = information units; TW = total words; RQ = retell quality.

In sum, a visual inspection of the results suggested that scoring of the four indicators based on the oral retell transcripts were consistent. The investigator combined all four indicators and examined them (despite the scale differences) by each participant; the graphs that showed ups and downs of each participant were similar (see figure 4.6 to 4.10).

The results also indicated that the training was more effective for Brian M. and Casey N. than with Pam R., Frank V., and Stan C. Again, from examining the level, trend, variability, immediacy of effect, overlap, and the similarity across the same phase, the data indicated that Brian M. had the greatest gain after training on all four indicators. Casey N. recalled more information units, total words, and had better retell quality. Pam R. and Stan C. showed increase in information units and retell quality, whereas Frank V. increased slightly in total words.

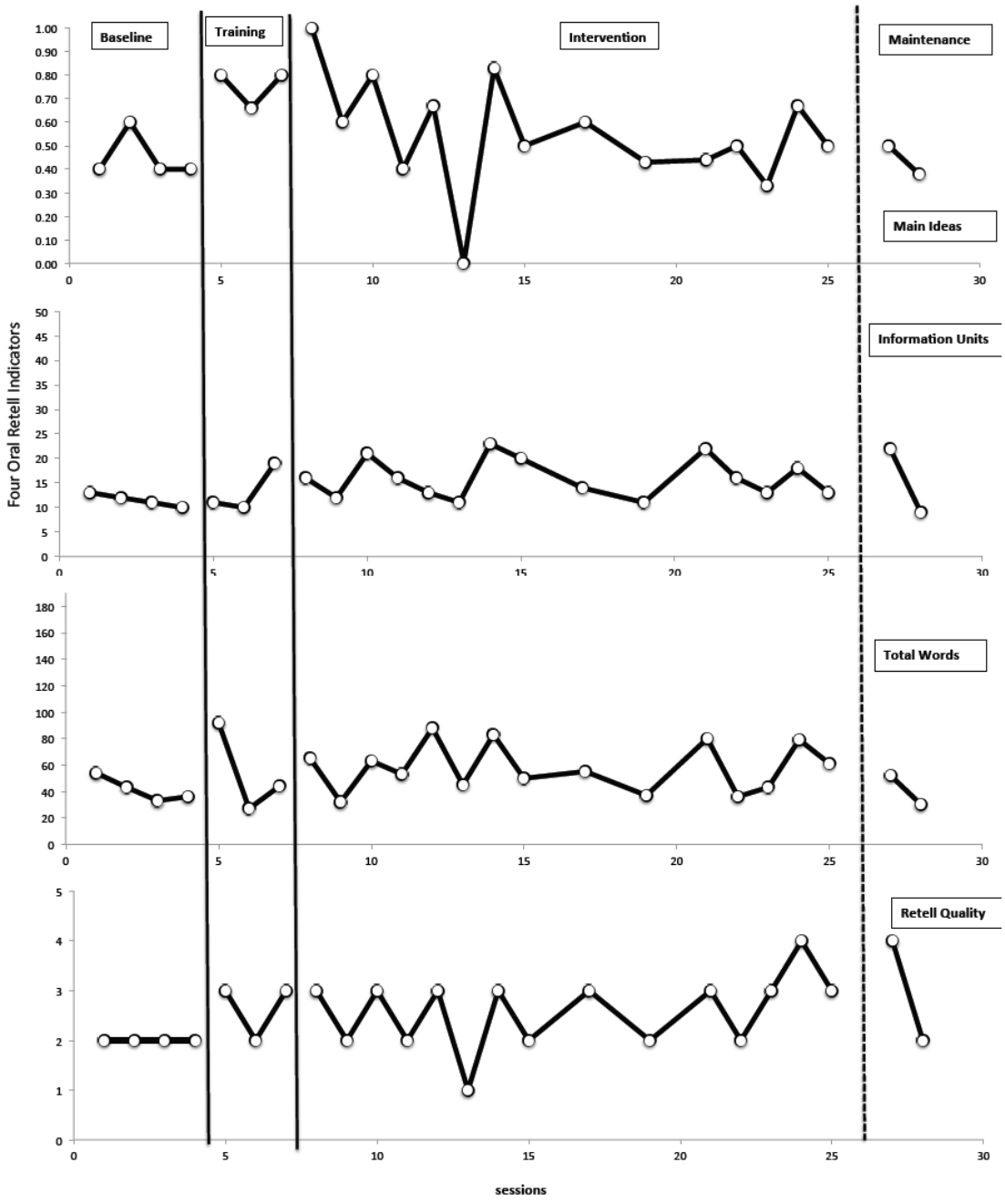



Figure 4.6. Four indicators of oral retell tasks: Casey N.

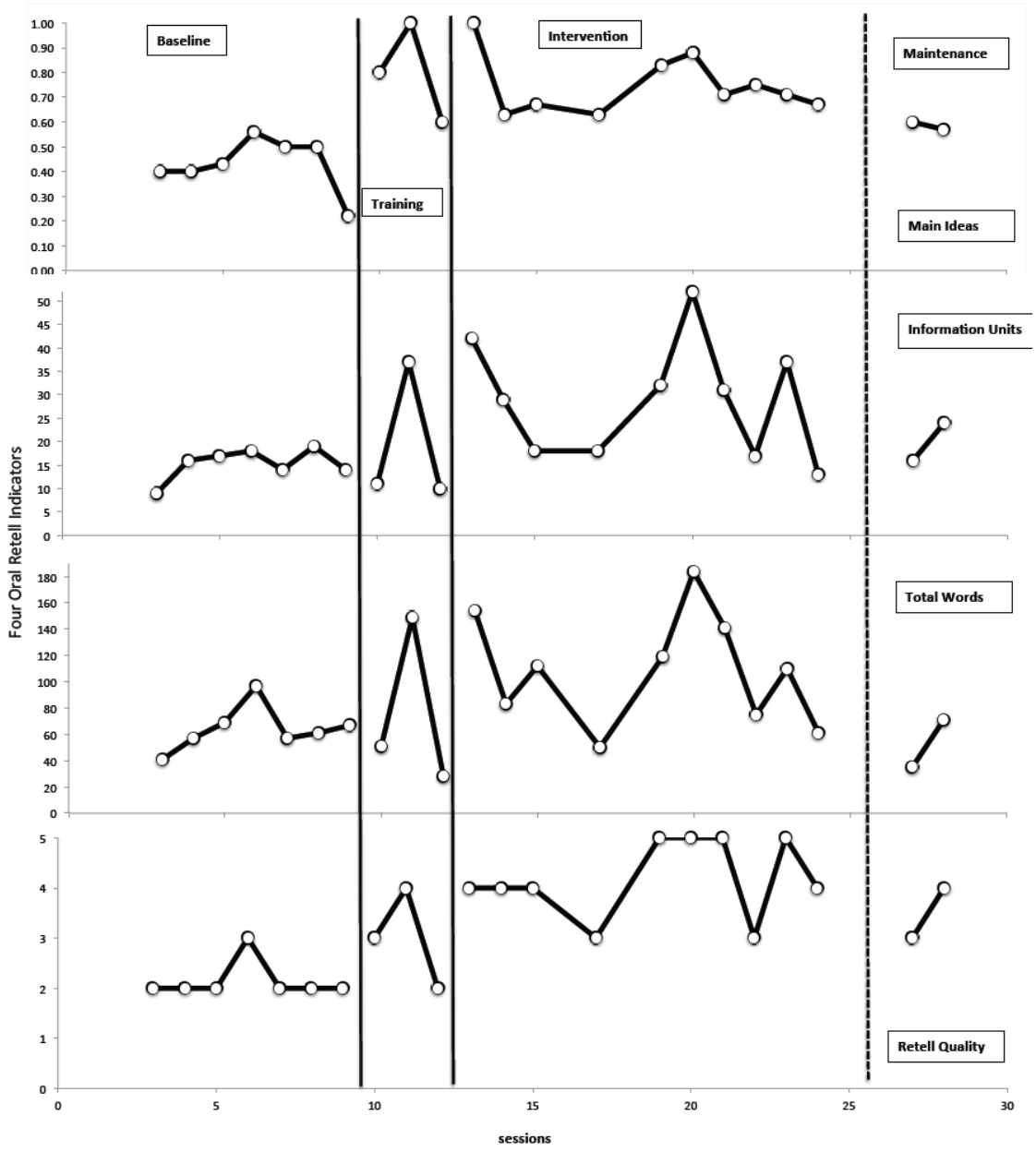



Figure 4.7. Four indicators of oral retell tasks: Brian M.

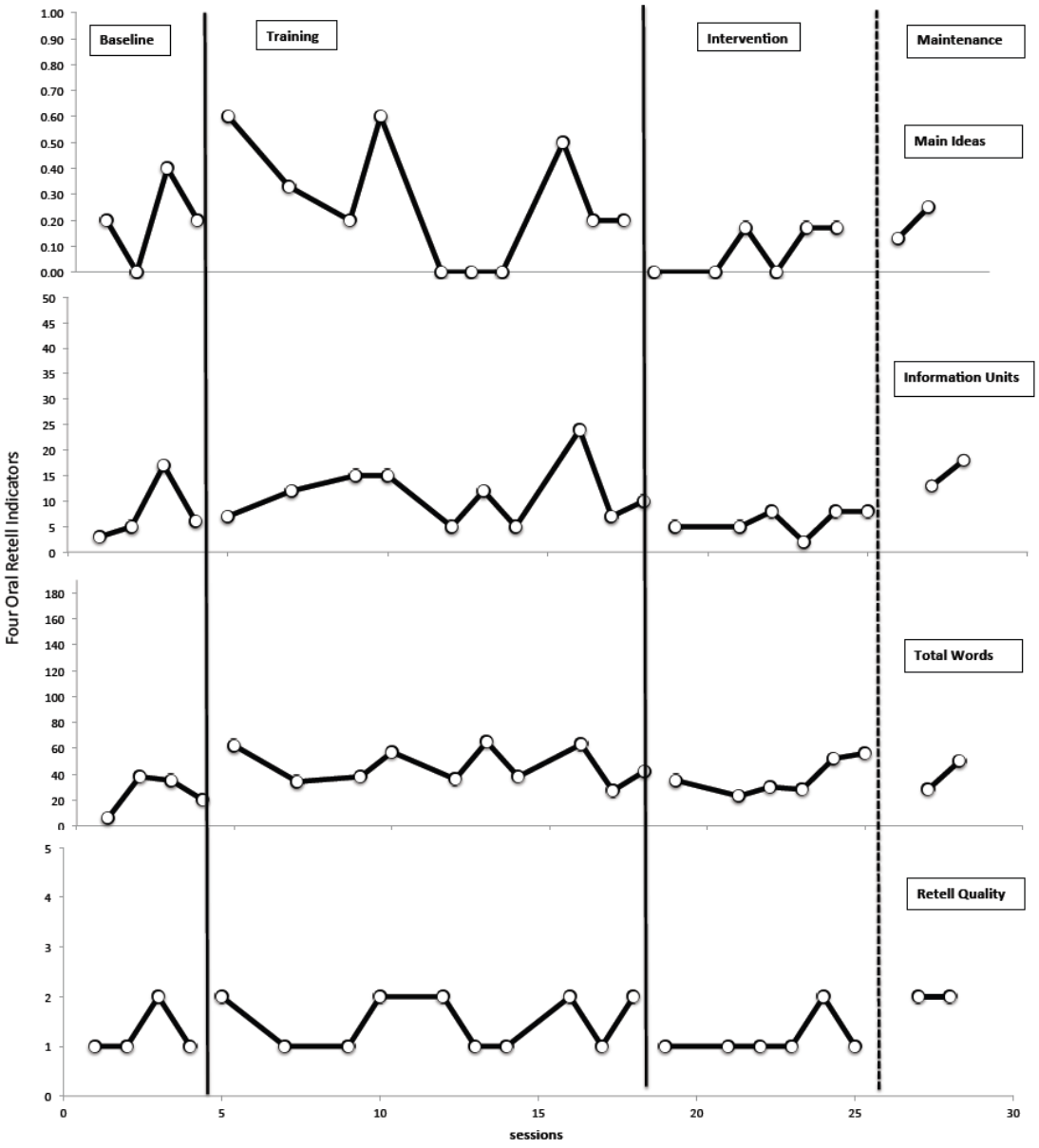



Figure 4.8. Four indicators of oral retell tasks: Frank V.

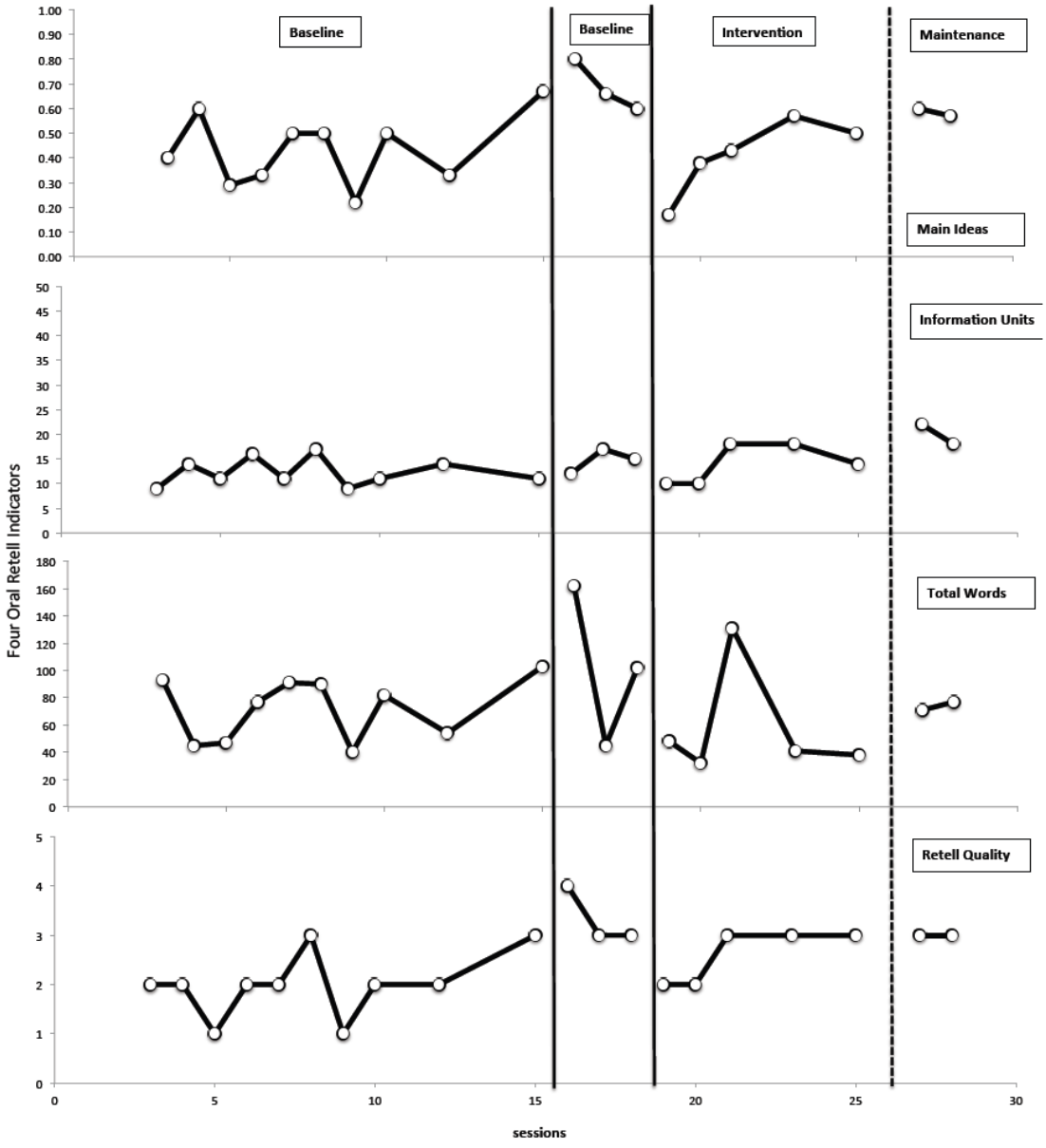



Figure 4.9. Four indicators of oral retell tasks: Pam R.

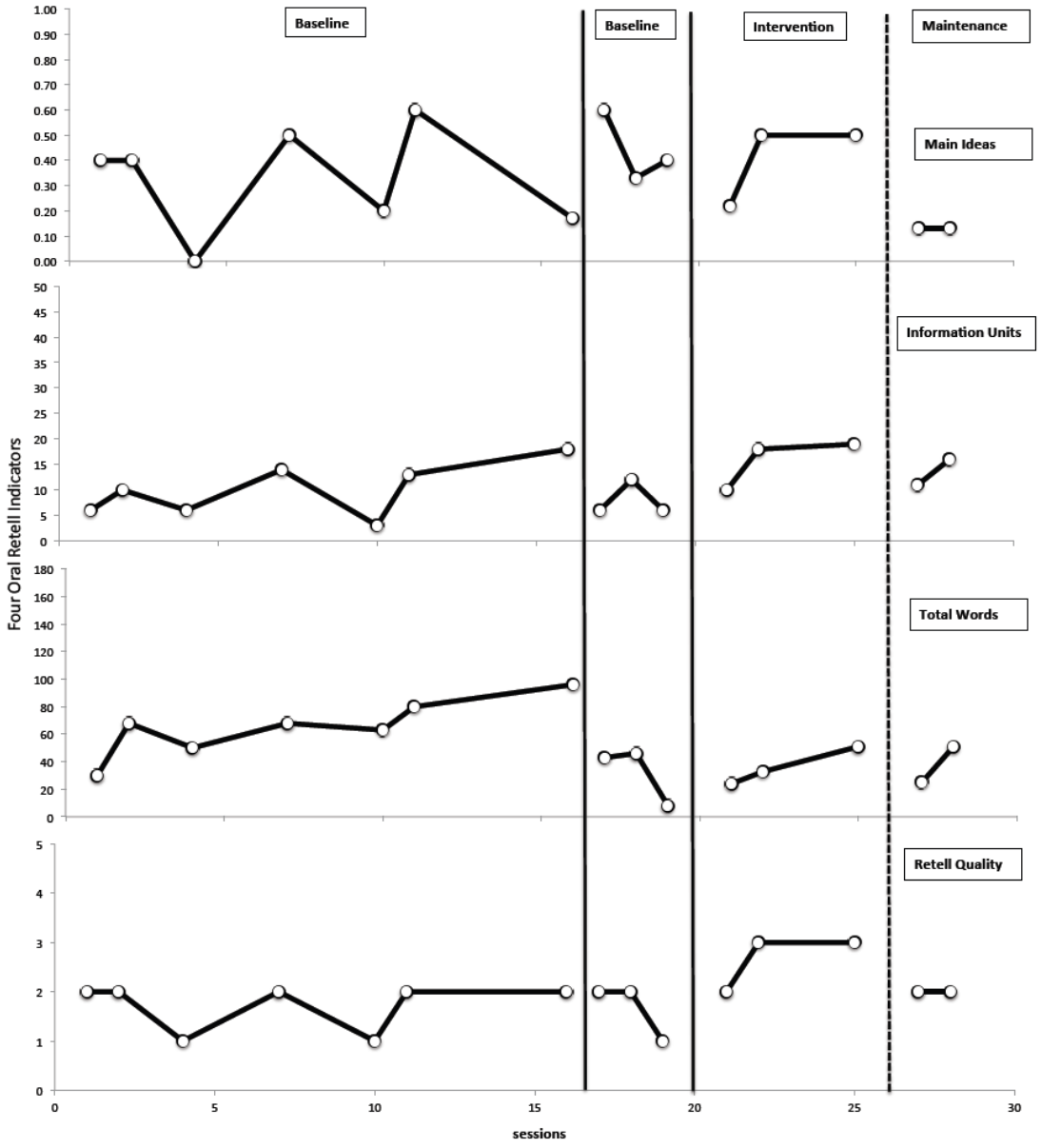



Figure 4.10. Four indicators of oral retell tasks: Stan C.

**Effect Size Analysis**

The effect sizes of individual for four indicators of the retell tasks are presented in table 4.4. Similar to the previous effect size analysis for the comprehension tests, the first

column reports PND of all participants in the intervention phase and the second column reports PND of all participants in the intervention plus the maintenance phase.

The PND effects of the four indicators of the retell tasks fell in the ineffective range for four participants, except for Brian M. After training, there was not a notable increase in the percentage of main ideas. There were slight increases on the number of information units, the number of total words, and retells quality; however, the effectiveness of the training is inconclusive.

For individual performance in recalling main ideas, Brian M. made significant increase (100%) in the percentage of main ideas, but none of the other participants did. Frank V., Pam R., and Stan C. had 0%, indicating the training did not assist them in recalling main ideas. Overall, except for Brian M., participants did not have significant increase in the percentage of main ideas after the training.

As for the number of detail information units, Casey N. and Brian M. improved after training (Casey: 66.67%; Brian: 60.00%), both in the debatable range of effectiveness. Pam R. improved slightly in the intervention phase (40.00%), and made more gains on the number of information units in the maintenance phase (57.14%). She may have made significant progress, if more sessions were administered to her.

Casey N. and Brian M. had increases in the number of total words (Casey: 53.33%; Brian: 60.00%), but not in the maintenance phase (Casey: 47.06%; Brian: 50.00%). Frank V., Pam R. and Stan C. did not recall more total words after training (Frank: 0%; Pam: 20.00%; Stan: 0%).

Casey N., Brian M., and Stan C. had notable increases in their retell quality scores (Casey: 60.00%; Brian: 80.00%; Stan: 66.67%). Frank V. and Pam R. did not show improvement after training (Frank: 0%; Pam: 0%).

The PND on retell tasks by four indicators suggest the training was not effective in increasing participants' recall of main ideas. The training had some effect in increasing the number of Casey's and Brian's information units, but was in the debatable range of effectiveness. The training did not have an effect on students' total words spoken, except for Brian who showed a slight improvement. Retell quality improved for Casey N., Brian M., and Stan C. However, only Brian's score was in the moderate effectiveness range.

Table 4.4

*PND on Retell Tasks*

| Indicators | Participants | PND | |
|---|---|---|---|
| | | I | I + M |
| MI | Casey N. | 33.33% | 29.41% |
| | Frank V. | 0% | 0% |
| | Brian M. | 100.00% | 100.00% |
| | Pam R. | 0% | 0% |
| | Stan C. | 0% | 0% |
| IU | Casey N. | 66.67% | 64.71% |
| | Frank V. | 33.33% | 37.50% |
| | Brian M. | 60.00% | 58.33% |
| | Pam R. | 40.00% | 57.14% |
| | Stan C. | 3.33% | 20.00% |
| TW | Casey N. | 53.33% | 47.06% |
| | Frank V. | 0% | 12.50% |
| | Brian M. | 60.00% | 50.00% |
| | Pam R. | 20.00% | 14.29% |
| | Stan C. | 0% | 0% |
| RQ | Casey N. | 60.00% | 58.82% |
| | Frank V. | 0% | 0% |
| | Brian M. | 80.00% | 75.00% |
| | Pam R. | 0% | 0% |
| | Stan C. | 66.67% | 40.00% |

*Note*. PND = percentage of non-overlapping data; I = Intervention phase; T = Training phase; M = Maintenance phase; MI = main ideas; IU = information units; TW = total words; RQ = retell quality.

**SOCIAL VALIDITY**

To answer the third research question on students' perception on the intervention, a formal interview was conducted with each student at the end of the intervention phase. Most students reported the training was helpful. In responding to the first question, Stan C. thought the training has "too much stuff" to remember; however, some parts were easy for him. Pam R. thought the same and she even talked about using the training (drawing

graphic organizer) during one of her tests. She was proud of herself when her friend asked her where she learned that. Casey N. and Brian M. also expressed that the training was helpful and they would like to learn more about using text structures and remember information from the reading. Frank V. did not respond to this question.

The following questions were narrowed down to focus on one part of the training. In the second question, the investigator wanted to know how students thought about learning and searching signal words of the description structure in the readings. All students said, "It was fun to do it." Although Frank V. did not respond with like or dislike, he remembered several signal words that we had talked about. "They are very good words," Stan C. said. Some even agreed to use them while working on writing assignments.

On organizing information from the text, all participants, except for Frank V., enjoyed making organizers and organizing information. The investigator asked Brian M. why he did not use the organizer to organize information. He replied that he did not think using a graphic organizer is better than not using it. Pam R. responded with an interesting metaphor: "It's kinda like math," she said. "It's like adding; take all the stuff in the book and add all the info (together)."

The next question was about reading strategies before, during, and after reading. Again, all students except for Frank V. liked the strategies and would like to use it in the future. Frank V. remembered the strategies, but he thought it would be too troublesome to use them while reading. Brian M. and Pam R. were honest—they liked the strategies, but will not use them every time.

The fifth question was designed for the investigator to understand their intention to learn more text structures in the future, since the training contained only one type of text structure. Stan C., Frank V., and Casey N. expressed that they do not want to learn more text structures, because "it's too much work." On the other hand, Brian M. and Pam R. expressed interest in learning more text structures if the opportunities were provided to them.

Overall, Brian M. expressed positive experiences toward the training and the strategies. He considered this good training, but when asked if he will use the strategies, his reply was "not always." Pam R. expressed that she had some difficulties using the strategies, but she also thought that some parts of the training were easy. Similar to Pam R. and Brian M., Casey N. considered this training good, but she was honest about not being willing to learn more about other text structures in the future. Stan C. considered the training fun and easy, but would not want to learn more about other text structures. His overly positive response was confusing when considering his difficulties during the study. While most of the participants expressed positive perspectives on the training, Frank V. responded with "I don't know," or comments indicating that he disliked the training. Even though he responded negatively, he remembered some signal words and all the strategies when hints were given.

Social validity data was also collected informally through conversations with their general education and special education teachers. In general, teachers expressed their concern for the difficulty participants' had comprehending texts. However, they were confident that the participants could learn from the training. In addition, they all

welcomed the "extra help" provided by the investigator because they were not systematically teaching expository text structure. For Frank V., the special education teacher stressed, "He is able to learn," but also mentioned that "He was placed in the resource room before he came to me this semester, so he needs time to catch up." According to her, Frank V. was learning the basic literacy skills (e.g., phonics). His lack of comprehension might result from lack of exposure to the materials. This was observed in most of his sessions. When asked, "Do you know anything about ___ (topic of the text)," he usually answered "No." Stan's special education teacher expressed her concern about his behavior problems affecting his learning. "He is a smart boy," she said, "but he has a lot of ups and downs." The unstable state of his learning was also observed through his frequent absence for behavior problems.

In summary, the participants liked the training on using text structure to understand and remember information from the reading. They thought using signal words and graphic organizers was helpful to understand the information. They also liked the strategies that reminded them to think about what they already know, organize information, and the reread if they do not understand the text. All participants were familiar with the strategies. They also internalized the strategy and used them in the maintenance phase (Field Notes: 6/2/2014 and 6/3/2014).

## FIDELITY RESULTS

### Implementation Fidelity

Three observers were invited to observe and rate the investigator. They used a fidelity checklist (Appendix G) to rate if the investigator was faithful to the procedures for all participants. Each observer was assigned at least five sessions individually. A total of 25 sessions were observed, approximately 25% of all sessions. When an observer was present, the investigator first introduced her to the participant. To obtain the best observation possible with minimal interruption, the observer sat near but not next to the investigator and the participant. The observer had the fidelity checklist and the lesson script with her. Most of the participants behaved as they usually did without an observer. However, Frank V. felt the presence of the observer was bothering him the first time she visited. However, when he got to know the observer more, he acted normally. The implementation fidelity was calculated with rated scores divided by total scores possible. The implementation fidelity was 99.9%, which indicated the investigator was true to the intervention plan and implemented the procedures consistently across the participants.

## SUMMARY

The results were mixed. Participants with LD responded better than participants identified with ID or ED. The description text structure trainings had moderate to large effect for participants with LD in reading expository texts when examining with the eight-item comprehension test. Two out of five participants experienced slow increase or

even decrease in the intervention phase (Casey N. and Frank V.), indicating review sessions are necessary after training.

Description text structure trainings had assisted two participants improved comprehension. Brian M. had significant increase on all four indicators of the oral recall tasks whether the data was examined by visual analysis or PND. Casey N. also had significant increase. However, her performance was unstable across the intervention sessions. Frank V., Pam R., and Stan C. did not have significant increase after training.

In addition, from the participant interview, participants generally liked the training and intervention. There were a few dislikes. Casey N. and Stan C. did not want to continue learning text structures on expository texts because of their perceived difficulty. Detailed discussions of the results are presented in the next chapter.

# Chapter 5: Discussion

Reading informational texts to obtain information and knowledge is a learning foci after students have acquired the skills needed to read (Gajria et al., 2007; RAND Reading Study Group, 2002). Students with disabilities, especially those who are experiencing difficulties in reading comprehension need effective strategies to understand the text they read. Numerous strategies have been studied over the past few decades to discern whether they are effective in assisting students comprehend the information texts conveys (e.g., Gajria et al., 2007; Gersten et al., 2001); one of which is teaching students to explicitly identify the structure of the text. Text structure provides students an organized structure of the information to assist their comprehension (Meyer, 2011; Williams, 2005).

Given the emphasis on reading comprehension of expository texts for all students under CCSS, including students with disabilities (Hagger & Vaughn, 2013), researchers and teachers have been searching for strategies effective in improving their reading comprehension. Text structure intervention has been found to be effective with older students with disabilities (Armbruster, Anderson, & Ostertag, 1987; Lovett et al., 1996; Bakken et al., 1997) and second-grade typical and at risk students (Williams et al., 2004; Williams et al., 2005; Williams et al., 2007; Williams et al., 2009). But its effectiveness for second or third-grade students with disabilities was unknown (Gajria et al., 2007). This dissertation was designed to respond this need.

This study investigated the effect of descriptive text structure training on the reading comprehension skills of second and third grade students with disabilities who exhibit reading comprehension difficulties. Five participants from an elementary school in a rural school district were recruited for the study. All five participants demonstrated reading comprehension difficulties and had IEP goals stating that they had been receiving reading support to improve their reading and reading comprehension. In addition, their DIBELS NWF scores confirmed that they had emerging decoding ability. Their ORF scores indicated their reading fluency abilities were in the at-risk range and might compromise comprehension.

A multiple-probe, single-case study was designed to investigate whether training on expository text structure with a focus on description structure had an effect on the reading comprehension skills of second and third-grade students with disabilities. Learning outcomes of the baseline condition were compared to learning outcomes of the intervention condition after participants received training. Three questions guided this study. First, what is the effect of description text structure training on multiple-choice comprehension test scores? Second, what is the effect of description text structure training on information retell tasks? Last, what is the perception of second and third-grade students with disabilities toward description text structure instruction?

The following sections contain a comprehensive discussion of the findings. Then, implications of the practice and limitations of the study will be discussed. The chapter will end with suggestions for future research.

## DISCUSSIONS ON EXPOSITORY TEXT AND COMPREHENSION

Understanding expository text, identifying main ideas, and recalling supporting details are skills students must acquire under the standards of CCSS (CCSSO, 2010) and TEKS (TEA, 2012) in second grade and beyond. This study investigated the effects of a description text structure intervention for students with disabilities. Reading comprehension—the understanding of written text—was measured with an eight-item multiple-choice test and an oral retell task.

Three out of five participants made gains on the multiple-choice test after training. Their data from comprehension tests demonstrated functional relationships of the training. Yet, only Brian M. made gains in recalling main ideas. Casey N., and Brian M. identified more information and uttered more words units after training. Casey N., Brian M., and Stan C. improved their retell quality after training. The results suggested that, the training was effective for Brian M., but not for the other participants when examining with oral retell tasks. For Casey, although she remembered more information than she had before training, her ability to identify main ideas did not change significantly. For Pam, Frank, and Stan, the intervention was ineffective.

The results also indicated that students with LD responded to the description text structure training better than students with ID or ED. This finding extended previous research in two ways. First, previous research suggested that text structure intervention for students with LD in fifth grade (Armbruster, Anderson, & Ostertag, 1987) and seventh to eighth grade (Bakken et al., 1997; Lovett et al., 1996) were effective. This study extended their finding to third-grade students with LD, who had a moderate to large

effect after receiving training on description text structure of expository texts. It should be noted that this study used single-case design to investigate the effectiveness of the description text structure intervention, while other studies that investigate the effect of text structure (e.g., Bakken, Mastropieri, & Scruggs, 1997) used group design. Although group design demonstrates effects for more students, single-case design is more sensitive to individual change during the intervention phase. For example, the scores of Casey N. and Frank V. went downward toward the end of the intervention phase. Such individual observation cannot be made for group studies.

In addition, the study also adds to the findings of Williams et al. (2005), Williams et al. (2007), and Williams et al. (2009) on teaching text structures to young elementary students. They found that typical and at-risk second-grade students increased in reading comprehension levels and strategy use of compare-and-contrast and cause-and-effect structure after intervention. This study supported that intervention in text structure was effective for struggling third-grade students with LD. However, second-grade students with disabilities did not respond adequately to text structure intervention in the current study.

However, there's one caveat to this finding. Though it suggested that students with LD responded better than students with ED or ID, their ages/grades and disabilities should also be considered. Frank V. and Stan C. were in second grade, whereas Casey, Brian M., and Pam R. were in third grade. Their age and years exposed in academic settings might play a role in explaining the ineffectiveness of intervention. The next section will discuss this further.

**Characteristics of Participants who did not benefit**

Frank V. and Stan C. did not demonstrate functional relations; therefore, they were considered "noneffects" (Kratochwill et al., 2013). Frank did not meet the exit criteria after the three sessions of training; as the result, the intensive support provided during training continued until he met the exit criteria of having two data points above 60% correct for the comprehension questions. Despite extended training, his performance declined when he began the intervention phase indicating that he needs intensive support to be successful. Frank's special education teachers mentioned that he was placed in general education classroom less than a year previously (starting in second grade). Therefore, he had only been exposed to grade-level material for a short period of time at the time of the study. This lack of exposure is also evident in his lack of prior knowledge. As prior knowledge plays an important role in comprehension, the investigator asked participants, "Do you know anything about ___ (the topic of the reading)?" before they started to read. Frank V. would usually state that he did not have any prior knowledge of the topic. Some of the topics would be considered to be common knowledge for a second grader, such as, "Bear Cubs (Reading 01)" and "Animal Tracks (Reading 09)." He was also distracted several times by the posters (Observation Notes: Frank 2/27/2014), his fingers (Field Notes: Frank 3/25/2014), and the observer (Field Notes: 4/3/2014).

Stan's data demonstrated a noneffect as well. His eight-item comprehension scores in the intervention phase stayed similar to the baseline phase. The two phases overlapped completely. However, his training phase was higher than the other phases, indicating that he needed intensive support as well. His frequent absence and inattentive

manner might have resulted in ineffectiveness of the training. He was not available to attend some sessions during the study. Most of the absences were not due to being absent from school, but to being in "time-out" as the result of inappropriate behavior, according to his teacher. He was also suspended from school for one week (Field Notes: Stan 3/26/2014, Stan 3/27/2014). He was present for 15 sessions while the others were present for 22 sessions or more. In addition, his time on task was not satisfactory when he was present in the sessions. He would be distracted by objects in the classroom; for example, the pen sitting on the other table (Field Notes: Stan 3/5/2014) or his own shoes (Field Notes: Stan 3/25/2014).

In addition, text difficulties may be one of the contributing reasons for the ineffectiveness of the intervention. Although reading texts were decodable and the readability was controlled at Flesch-Kincaid Grade Level 1.28, Frank V. and Stan C. had difficult time reading texts in most of the sessions. This would impede their comprehension as well as their retell performances since the relationships between retell and decoding and between retell and fluency were stronger in younger students (Reed & Vaughn, 2012).

**Participants Need Review Sessions**

After training, the investigator provided minimal support to participants in the intervention phase. Before each session, the investigator reviewed the eight-item comprehension questions from the previous reading. In addition, the investigator showed the participants how she would create the organizer for the reading. On average, the short

review took less than five minutes. Casey's and Frank's data in the eight-item comprehension tests showed they experienced a decreasing trend toward the end of the intervention phase. Taking Frank's slow growth into account, it may be necessary to administer a review training session intermittently during intervention. However, there was not enough information about the timing or the length of review training sessions to refresh their text structure knowledge. Future studies should investigate the timing and the length of review training sessions needed to ensure participants learn to use text structure effectively.

**Results were impacted by measures**

In addition to the multiple-choice reading comprehension tests, participants were evaluated by a secondary outcome measure: oral retell task. Retell has been used to assess reading comprehension (Hansen, 1978; Klingner, 2004; Reed & Vaughn, 2012), and has been proposed as a valid measure of reading comprehension, though it is moderately correlated with standardized reading comprehension measures (Reed & Vaughn, 2012). Multiple-choice reading comprehension tests, a receptive measure, provided participants four choices. Participants had only to pick one correct answer from the four choices. The multiple-choice comprehension tests were considered to measure one aspect of participants' understanding of the reading texts. However, oral retell task, an expressive measure, measured several aspects of comprehension. To perform this task, multiple skills were required. Participants were asked to recall what was read in the text,

to organize in their mind the main ideas and the supporting details, and to retell the information in a coherent manner.

Therefore, the results of the present study indicate that although Brian, Casey, and Pam performed well on multiple-choice comprehension tests, not all of them were able to detect higher-level information units (i.e., main ideas). Brian was able to excel on all four indicators in the recall tasks, while Casey and Pam needed extra support in extracting main ideas from the texts and identifying supporting details.

Thus, oral recall task would be a good assessment to examine students' deeper understanding of text. Yet, despite this advantage, given the laborious scoring procedure, using retell and examining its four indicators would not be recommended as an efficient tool for teachers to administer to obtain immediate scores for reading comprehension on a regular bases.

### THE PRODUCTION OF VISUAL DISPLAY: GRAPHIC ORGANIZERS

Various forms of graphic organizers or visual displays have been used to assist students with disabilities, especially students with LD, to maximize their text comprehension (Dexter & Hughes, 2011; Gajria et al., 2007; Kim et al., 2004). In the present study, the student-created organizer was not designed to measure reading comprehension, however, the organizers created by participants before and after training revealed some important information.

Before training, participants were encouraged to write down any information that would help them remember the content of the reading text. Most participants chose to

leave the paper blank even though the investigator encouraged them to write or draw on the paper to help them remember the text. Only Stan wrote some words in session four reading "In the Ocean." See Appendix M for participants' organizers before and after intervention training.

After training, participants were able to create an organizer that was similar to the investigator's model. For example, Pam's organizer after training was improved in two ways. First, she used the elements that the investigator taught in the training sessions: circles to include important information and lines to represent their relationship. Second, she was able to detect a sublayer of information. Pam R. wrote "lens" and "tube" under "parts of it (telescope)." It indicated that Pam R. understood lens and tube are parts of the telescope.

Similarly, Brian's organizers were improved in detecting important information and the relationships between information units. For example, in his "Airplanes!" organizer, he put the first layer of information (i.e., main idea(s)) on the big circle. Then, under it, there were a few main ideas that were related to the airplane. Although some elements were still missing, such as missing a layer of information, he created a fine organizer to assist his understanding of the text.

Even though the investigator emphasized writing important information, Casey's organizers included unimportant information. For example, in the reading "Lightning!" the text asked, "Are you filled with fright or delight?" when lightning strikes. It was not about the lightning itself; however, Casey N. chose to write "fright" under the lightning. Frank's organizers did not make sense most of the time because he usually wrote what

appeared in the text and did not organize it. For example, he wrote "boats" under "to" under "water" when he read "It (the lock) has a way to let water in and out. The water can lift boats up and drop them down" on page 10 of the text. In addition, he sometimes copied an entire sentence. From the same text and organizer, he copied "people can use water in lots of ways" from the reading (p. 4). This further confirmed the research of Englert & Thomas (1987) that students with LD or mild disabilities exhibit difficulties in discerning the relationship of the information. However, after training and continuing support, Casey N. was able to create sensible organizers, while Frank V. still needed more support.

It should be noted that the organizers were not formally scored because the investigator gave them an option to opt out. Brian M. chose not to generate an organizer during three sessions (session 22, 23, and 24). When asked why he did not want to organize the information, he expressed his concerns about not having enough space in the test. Also, the investigator observed that he took more time constructing organizers than the other participants. On average, his session lasted 35–40 minutes. When he did not create an organizer, the session was about 25 minutes. It reflected that constructing the organizer for each reading text was time consuming. In testing environment, especial standardized test when speed is required, it would be difficult to construction a visual display for every article. Therefore, Brian's concern is practical. However, in examining the oral retell tasks, his percentage of main ideas, number of information units, and total words dropped in sessions 22–24, indicating that his memory of information from the reading was affected.

Overall, participants learned how to use organizers to organize information. Casey, Brian M., Stan, and Pam R. were able to create an organizer that made sense. Brian's and Pam's organizers were more complex than the others.' Making an organizer would take longer time than not organizing the information on paper. Students might not be willing to spend time to do it since it was an option. After reviewing, participants were unable to compose an organizer as comprehensive as the one presented by the investigator in the intervention phase.

Further, the participant-created organizers, when comparing with the investigator-created organizers, were inadequate in terms of the number of information units and complexity. As Dexter and Hughes (2011) and Kim et al. (2004) suggested, students with LD or mild disabilities would need extensive support to maximize their learning in generating a meaningful organizer from the text.

### DISCUSSIONS ON SOCIAL VALIDITY

Participants generally perceived the training and the intervention to be very helpful for their reading and four participants indicated that they would like to continue using the training and reading strategies in the future. Interestingly, although the research design did not include examining transfer effect, Pam R. talked about how she transferred what she learned to uninstructed settings. Future study based on a systematic investigation of transfer effects on unstructured text structure and/or uninstructed learning environments (e.g., readings from Language Arts in general education classroom) would provide valuable information. Adding to her comments, Pam R. also paralleled

organizing information with doing math problems. She related something she considered hard (i.e., reading) into something she was good at (i.e., math). Her statement comparing reading and math was encouraging because she took an active role in thinking about how to approach reading.

Conversely, Stan C. and Casey N. stated in the interview that the training steps and strategies were overwhelming for them. When asked about if they would want to continue learning more text structures in the future, their answers were negative. Their responses, although negative, revealed that students with reading comprehension problems couldn't process large amounts of information. It would have to be split into small pieces and taught with extensive or repeated practices. Despite his unwillingness to learn new text structures, Stan C. demonstrated overly positive feedback toward his experience during the study. His responses confused the investigator, given that he experienced difficulties when reading the text in most of the sessions. It might be that the investigator administered the interview, so he would not want to cause embarrassment. The other reason might be that he considered himself a smart person, since he stated that some materials were too easy for him. This finding also corresponded with the finding of Coleman & Vaughn (2000) that students with ED have fear of failure problems that they would avoid situations that might make them "look bad."

Other than each participant's interview, the investigator also valued the teachers' perceptions of the study, which were positive. Their positive responses suggested that they welcomed intensive interventions for students who experience difficulties in reading comprehension

## IMPLICATION FOR PRACTICE

It is every teacher's wish to equip his/her students to be successful readers ready to face challenges of this information-loaded world. For students with disabilities, the odds are against them for future academic attainment and income. Lower rates of attaining post-secondary degree and lower income worry us (McLaughlin, Speirs, & Shenassa, 2014). We certainly have not done enough in teaching students with disabilities, as a recent study indicated, of the 22 states reported that in 12 states 50 percent or fewer elementary students with disabilities attained proficient level in science assessments (Thurlow, Rogers, & Christenson, 2010). Therefore, we need more studies for educators to assist students with disabilities in reading expository texts, including science contents.

Three implications of the current study can be applied to the current classroom practice. First, this study suggests that teaching description text structure to third-grade students with LD might be effective for learning expository texts. Components of the current study—explicit instruction on learning description text structure, identifying signal words, and organizing information via a visual display—provide moderate improvement and could be applied to one-on-one instruction. The current study extended previous interventions on teaching text structure to older students with LD (Armbruster, Anderson, & Ostertag, 1987; Lovett et al., 1996; Bakken et al., 1997) to younger students with LD. However, second-grade students with other disabilities did not respond to the intervention. The reason for the ineffectiveness for second-grade participants with disabilities is left unknown. It might be that the participants in the current study were

more severe in their behavior and learning difficulties. Thus, more studies should focus on examining second-grade students with disabilities to determine the effectiveness of the intervention for this population.

A second implication derived from the positive feedback from second and third-grade students with disabilities toward learning description text structure. They perceived that it was a useful and fun activity. Although the social validity data was not investigated in the previous studies, it was a great reference for educators who are planning to teach text structure. Four out of five participants enjoyed the training and the intervention; two of them would like to learn more text structures if opportunities were given to them. In addition, three out of five participants were unwilling to learn other types of text structure because they perceived it as a laborious process. Educators would have to find out the individual preference to the intervention, in addition to his/her response, when administering text structure instruction.

Last, under the scope of response to intervention (RtI) practice, researchers and educators are in need of effective interventions for students who are placed in Tier 3 instruction (Gersten et al., 2008). The findings of the present study can be used as one of the Tier 3 instruction strategies to improve students in reading expository texts. It should also be cautioned two second-grade participants with disabilities did not respond adequately in the present study. The ineffectiveness of the intervention might result from the instructional objectives overwhelming them during the training and the intervention phase. Thus, a more intensive intervention with behavior support for students with ID and ED would be needed (Benner et al., 2010). For example, Stan and Frank may have

benefitted from intermittent reinforcement using a timer, a behavior and academic intervention, suggested by the National Center on Intensive Instruction (NCII, 2015).

## LIMITATIONS OF THE STUDY

Several limitations of the study need to be considered when interpreting the results. First of all, the study contained a small number of participants. Although five participants is sufficient for a single-case study, it would be more persuasive if more participants were included. However, according to the standards proposed by Kratochwill et al. (2013), a study is considered to provide "Moderate Evidence" if it includes three demonstrations of effects and at least one noneffect. The finding of current study indicated that three third-grade students with LD made significant gains after description text structure training and two participants did not demonstrate functional relations on the comprehension test measure. Thus, this study met the criteria to be moderate evidence according to Kratochwill et al. (2013).

Another limitation pertained to intervention design. Since signal words were one of the important elements of text structure, they were taught and reviewed in the training sessions. However, because of the nature of the study, signal words were not attended to in-depth in the study. That is, the design of the study contained one type of text structures, whereas signal words were tools to discern the type of text structure from the text. Therefore, it was not clear if participants understood the concept of signal words or the usage of them. Although participants recalled some of the signal words in the maintenance sessions, it was insufficient to understand the degree to which the

participants would use the signal words. Further studies are needed to examine if students understand the concept by using them in a writing measure.

Another limitation of the study design was that the study did not examine the transfer effects to other settings or other type of text structure. For example, would participants maintain similar performance when reading in their general education classroom? Would the participants maintain similar performance when reading material containing compare-and-contrast structure? Williams (2005) demonstrated transfer effects from the instructed materials to the uninstructed material with success with second-grade students. Thus, future studies could extend current study and examine transfer effects.

Another limitation related to the measures used in the study. The researcher-developed, eight-item multiple-choice tests were not piloted prior to the study. Although the investigator took precautions before administering the test (i.e., evenly distributing question types and sending questions to be reviewed by an experienced teacher), the validity of the tests could still be questioned. In addition, the test itself has limitations. The eight-item multiple-choice tests, with four choices, were easier to guess. Some participants may have been able to guess the answers (Field Notes: Stan 3/5/2014; Frank 4/9/2014). However, despite this limitation, the multiple-choice comprehension tests were easier to score than the retell tasks.

The investigator intended to score the retell tasks with all aspects possible; therefore, it took considerable time to transcribe and score the retell tasks. As a result, the

retell tasks were not used as a tool to monitor participants' progress and make decisions. It should be noted as a limitation to the study.

In addition, participants were not mandated to generate an organizer during sessions. Consequently, the organizers were not scored. It could have been a great resource to examine participants' comprehension of the text.

Last, a bias in favor of the intervention might be present because the investigator administered interviews. The investigator had good rapport with the participants; thus, participants might not want to disclose problems or issues with learning the description text structure. An alternative would be using one of the observers to administer the interview. However, considering participants might not willing to disclose their perceptions to the observer, the decision to let the investigator administer the interview was the best choice of the time. Given the above consideration, this should be acknowledged as a limitation.

## SUGGESTIONS FOR FUTURE RESEARCH

Future research for students with disabilities should replicate the current study and continue to teach different types of text structures. This study explored one type of text structure (i.e., description). Further studies should attempt to systematically implement studies with different types of text structures to students with disabilities who also demonstrate difficulties in reading comprehension. Moreover, studies should also be directed to investigate the effective length of training sessions and the most efficient

timing of review sessions. It would take extensive research and multiple studies to accomplish.

Further research should also consider scaling up the current study to include students with disabilities across schools. In addition, the investigator of the current study also calls for single-case design researchers to replicate the study across different geographical locations to develop strong evidence of text structure intervention (Horner et al., 2005; Kratochwill et al., 2010; Kratochwill et al., 2013).

While retell was not found to be an efficient progress-monitoring tool (Reed & Vaughn, 2012), it reveals more information than multiple-choice comprehension questions. Future studies should also aim to develop a standardized process to utilize retell as a progress-monitoring tool in examining students' progress in reading comprehension. In light of the complicated scoring procedure of the current study, future studies should explore more practical procedures for classroom teachers without sacrificing quality of information extracted from retell. Similarly, the current study did not include graphic organizers as an indicator to examine student progress in reading comprehension. Although graphic organizers are often utilized as an intervention, some studies utilize it as a measure (e.g., Boyle, 1996). Future studies are needed to determine the utility of graphic organizers as a tool to better understand students' understanding of relationships between information units.

A final recommendation for future studies is to incorporate written measures in the design of the studies. In the present study, there was no written measure designed due to the experimental design and participants' writing abilities. Incorporating a written

measure would further explore participants' understanding of text structure, ability to discriminate different text structure, and ability to use signal words (Miller & Lignugaris-Kraft, 2002). Nonetheless, a paucity of studies pertains to elementary students with disabilities learning to incorporate text structure to writing. More studies on text structure intervention for writing expository texts are needed.

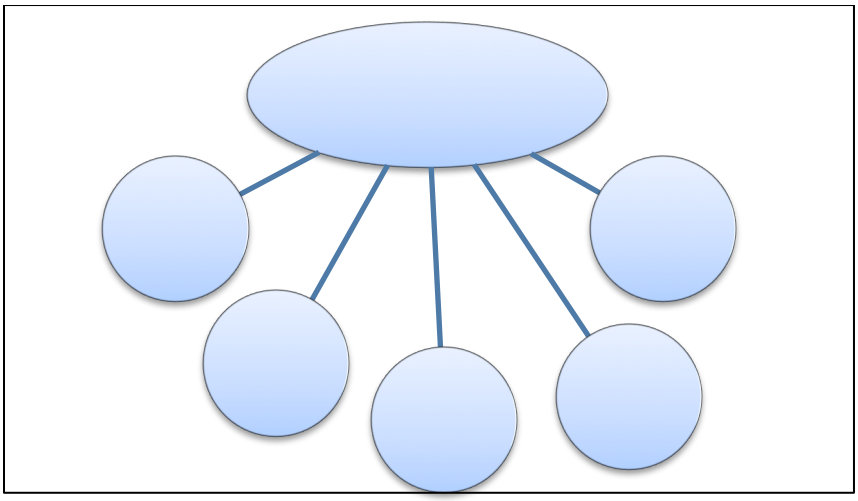
## SUMMARY

The purpose of this study was to examine the effectiveness of description text structure training for second and third-grade students with disabilities who also demonstrate reading comprehension difficulties. The intervention incorporated explicit instruction on description text structure and reading strategies of before, during, and after reading. Results from the eight-item multiple-choice comprehension tests and the retell tasks indicated that three third-grade students with LD responded to the intervention with progress in terms of increasing number of multiple-choice questions and increasing number of main ideas, information units, and retell quality. However, second-grade students with ID and ED did not respond to the training adequately. Despite the lack of effects of two participants, most participants and their teachers had positive feedback on the intervention. Acknowledging that there were several limitations of the study concerning the number of participants, measurements, and study design, description text structure intervention is a moderate effective intervention for assisting third-grade students with LD to improve reading comprehension and to retain more information.

# Appendices

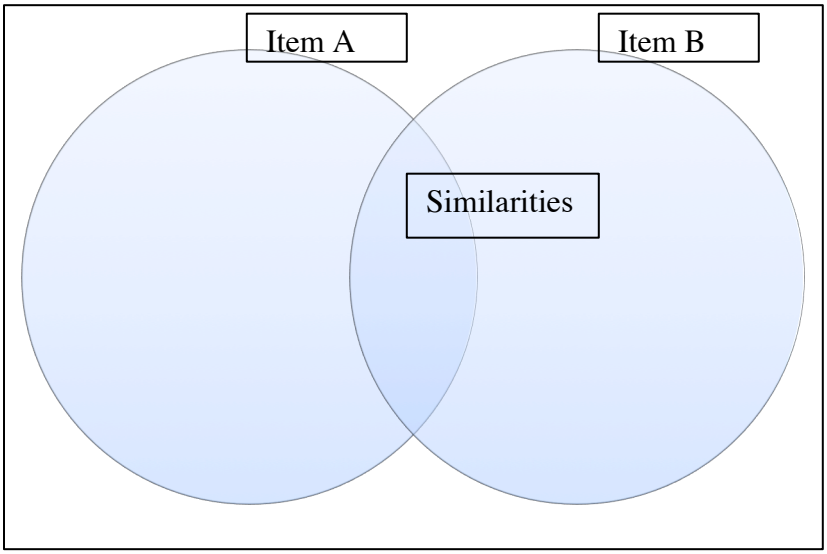
## APPENDIX A: VISUAL DISPLAYS OF TEXT STRUCTURES

1. Description

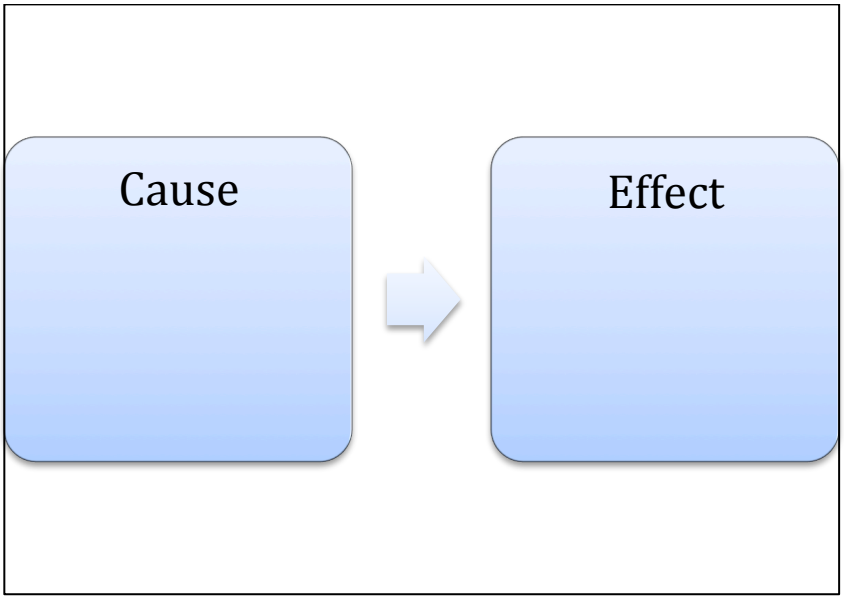


2. Sequence

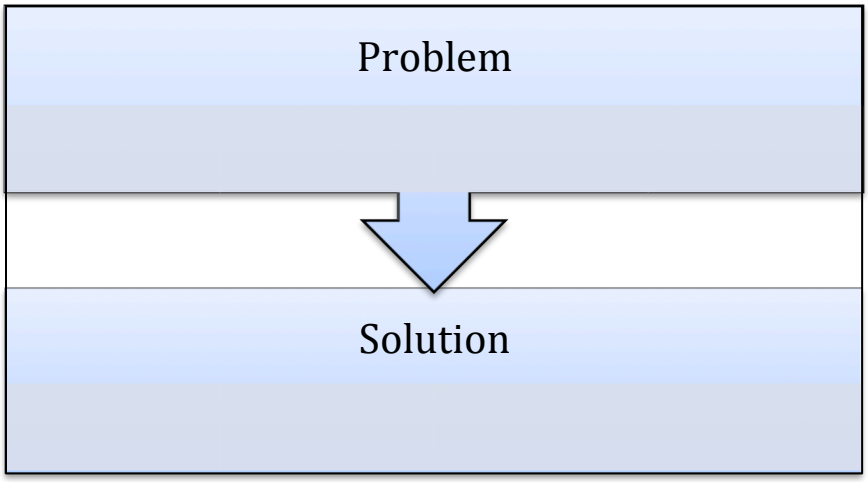
3. Comparison




4. Causation



5. Response



## APPENDIX B: STUDENT ASSENT FORM

IRB USE ONLY
Study Number: 2013-12-0061
Approval Date: 02/20/2014
Expires: 02/19/2015

**Assent for Participation in Research**
**Title: Effects of Description Text Structure Intervention**

**Introduction**

You have been asked to be in a research study about if learning description text structure helps students understand and remember more information from reading. This study was explained to your parents and they said that you could be in it if you want to. We are doing this study to help us understand if the strategy works and if it would help you organize the information from the reading.

**What am I going to be asked to do?**

If you agree to be in this study, you will be asked to
**1. read articles about animals, people, and places on earth,**
**2. answer 8 multiple-choice questions after each reading,**
**3. talk about things you learn/remember from the article (you will be audio recorded), and**
**4. talk about how you feel about the strategy (you will be audio recorded).**

This study will take about 3 sessions per week for 7-9 weeks. Each session will be 30 minutes. The study will use some of your study time during school days. We will meet in another classroom or an office space at school. There will be five other children like you in this study. There are no potential risks to participating in this study.

**Do I have to participate?**

No, you don't have to. You should only be in the study if you want to. You can even decide you want to be in the study now, and change your mind later. No one will be upset. If you would like to participate, **please sign the next page**. You will have a copy of this form so if you want to you can look at it later.

**Will I get anything to participate?**

You will get stickers after each session and three pencils as a gift of completion at the end of the study.

**Who will know about my participation in this research study?**

The records of this study will be kept private. Your name will be replaced with a made up name. Your responses may be used for a future study by the researcher or other researchers.

**Signature**

Writing your name on this page means that the page was read by or to you and that you agree to be in the study. If you have any questions before, after or during the study, ask the person in charge. If you decide to quit the study, all you have to do is tell the person in charge.

| | |
|---|---|
| _____ | _____ |
| Signature of Participant | Date |
| _____ | _____ |
| Signature of Researcher | Date |

## APPENDIX C: PARENTAL PERMISSION FORM

IRB USE ONLY
Study Number: 2013-12-0061
Approval Date: 02/20/2014
Expires: 02/19/2015

**Parental Permission for Children Participation in Research**

**Study Title: Effects of Description Text Structure Instruction on Second and Third Grade Students with Learning Disabilities**

**Introduction**

The purpose of this form is to provide you (as the parent of a prospective research study participant) information that may affect your decision as to whether or not to let your child participate in this research study. The person performing the research will describe the study to you and answer all your questions. Read the information below and ask any questions you might have before deciding whether or not to give your permission for your child to take part. If you decide to let your child be involved in this study, this form will be used to record your permission.

**Purpose of the Study**

If you agree, your child will be asked to participate in a research study to determine if an instruction strategy called Text Structure will improve reading comprehension in children with learning disabilities. The Text Structure is a strategy to assist remembering and recalling detail information from the reading materials. This study will measure comprehension and recall from your child.

**What is my child going to be asked to do?**

If you allow your child to participate in this study, you will be asked to

**1.) Permit the Investigator access to your child's school testing data.**

If you allow your child to participate in the study, he/she will be asked to

**1.) read articles about animals, people, and places on earth,**
**2.) answer eight multiple-choice questions after each reading,**
**3.) recall information he/she learn/remember from the article (he/she will be audio recorded), and**
**4.) interview on how his/her feel about the strategy (he/she will be audio recorded).**

This study will take **approximately 7-9 weeks (3 sessions/week, 30 minutes per session)** and there will be five other children in this study. This study will take place during your child's school time in a private classroom or office space at school.

**What are the risks involved in this study?**

There are no foreseeable risks to participating in this study.

**What are the possible benefits of this study?**

The possible benefits of participation are: Participants receive one-on-one instruction with comprehension strategies that are effective for older students with learning disabilities.

**Does my child have to participate?**

No, your child's participation in this study is voluntary. Your child may decline to participate or to withdraw from participation at any time. Withdrawal or refusing to participate will not affect their relationship with The University of Texas at Austin (University) or the child's school in anyway. You can agree to allow your child to be in the study now and change your mind later without any penalty.

**What if my child does not want to participate?**

In addition to your permission, your child must agree to participate in the study. If you child does not want to participate they will not be included in the study and there will be no penalty. If your child initially agrees to be in the study they can change their mind later without any penalty.

**Will there be any compensation?**

Your child will receive stickers after each study session and three pencils as a gift of completion at the end of the study.

**What are the confidentiality or privacy protections for my child's participation in this research study?**

This study is **confidential.** The name of your child will be replaced by pseudonym on all research data and when constructing the report. Any personal identification information, test scores, and audio recordings will be stored securely and only the Investigator will have access to them. Digital recordings will be kept for **6 months** and then deleted.

If it becomes necessary for the Institutional Review Board to review the study records, information that can be linked to your child will be protected to the extent permitted by law. Your child's research records will not be released without your consent unless required by law or a court order. The data resulting from your child's participation may be made available to other researchers in the future for research purposes not detailed within this consent form. In these cases, the data will contain no identifying information that could associate it with your child, or with your child's participation in any study.

**Whom to contact with questions about the study?**

Prior, during or after your participation you can contact the researcher **Yu-Ling Sabrina Lo** at **512-913-1054** or send an email to YLO@utexas.edu . This study has been reviewed and approved by The University Institutional Review Board and the study number is **2013-12-0061.**

**Whom to contact with questions concerning your rights as a research participant?**

For questions about your rights or any dissatisfaction with any part of this study, you can contact, anonymously if you wish, the Institutional Review Board by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

**Signature**

You are making a decision about allowing your child to participate in this study. Your signature below indicates that you have read the information provided above and have decided to allow them to participate in the study. If you later decide that you wish to withdraw your permission for your child to participate in the study you may discontinue his or her participation at any time. You will be given a copy of this document.

_____
Printed Name of Child

_____ _____
Signature of Parent(s) or Legal Guardian Date

_____ _____
Signature of Investigator Date

## APPENDIX D: SAMPLE READING: TREE FROGS (TRAINING TEXT)

**Title: Tree Frogs**

By Barbara Wood

| | |
|---|---|
| P4 | This is a tree frog. A tree is its home. It is a safe place to hide. |
| P5 | These are tree frogs, too. |
| P6 | **Frogs Have Fingers**<br>How can a frog cling to a tree? It has fingers with flat pads. The pads are sticky. |
| P7 | The pads help a frog grip. A frog can cling to a tree. It will not slip and drop. |
| P8 | **Frogs Have Legs**<br>This frog has a little body. But look at those long legs! |
| P9 | Long legs help frogs hop. They can hop from place to place. They can hop way up into trees. |
| P10 | **Tadpoles**<br>Look at the tadpoles! A tadpole will be a frog one day. |
| P11 | This little frog was a tadpole. It clings to the back of a big frog. When the big frog hops, it will not drop off. They can go way up into a tree. |
| P12 | **Frogs Eat**<br>Frogs eat bugs like these. |
| P13 | Look at the way this frog eats. It grabs a bug. Frogs like to eat crickets. |
| P14 | It's a bit like we eat—without the bugs! |

Total words: 173
Total sentences: 26
Readability: grade 2
Flesch Kincaid Grade Level : -0.3

**Key words:**

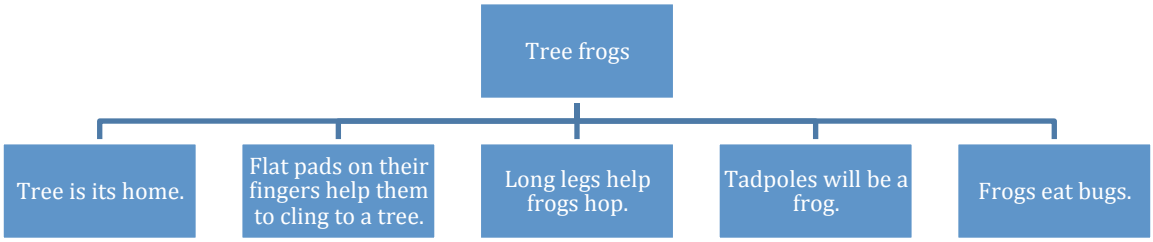
Cling
Pads
Sticky
Grip
Tadpoles
Grab
Cricket (Students might already know)

**Cue Words/signal words:**

(Text features: section titles in bold)
Frogs Have Fingers
Frogs Have Legs
Tadpoles
Frogs Eat

1. Find the **main idea**: things about tree frogs
2. Find supporting details for the main idea.

The description structure of the text



# My Reading Strategies

Read like a great reader!

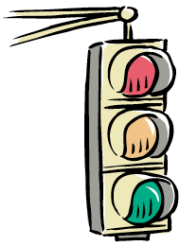
Step 1: (Before Reading) think about what I already know

Step 2: (During Reading) search for signal words and organize important information

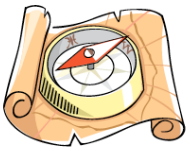

Step 3: (After Reading) check to see if I understand

(If not, go back and read it again!)

## APPENDIX F: SIGNAL WORDS LIST



# Signal Words



If you are asked to write a

**description or list**

use these words:

- To illustrate
- For instance
- In addition
- And
- Again
- Moreover
- Also
- Too
- Furthermore
- Another
- First of all

*Sarah Russell, Washow County Schools, Reno, Nevada

Vogt & Echevarría (2008). *99 Ideas and Activities for Teaching English Learners with THE SIOP MODEL.* Boston: Allyn & Bacon.

## APPENDIX G: FIDELITY CHECKLIST

**Baseline/Intervention/Maintenance**

**A. Observation Information**

**Directions**: Please complete the following information about the session you are observing.

1. Observer: _____ 2. Student: _____

3. Date: _____ Time (start/end): _____

**B. Fidelity Checklist Directions**: Based on your observation, please check if the implementer has done the following items.

**1. Baseline session:**
**(Rating guide: 1-not observed 2- not sure 3- observed)**

| The implementer | Rating | Comments |
|---|---|---|
| • Set the student in a quiet area that has minimal disruption. | 1 2 3 | |
| • Place the reading and a piece of blank paper before the student. | 1 2 3 | |
| • Instruct the student to read the reading, write down notes to help them comprehend, and answer the 8-item comprehension questions. | 1 2 3 | |
| • Allow sufficient time for the student to complete the reading and answer the questions. | 1 2 3 | |
| • Take the reading, the note, and the 8-item questions away from the student. | 1 2 3 | |
| • Ask the student to recall the information on the reading. Tape recording the response. | 1 2 3 | |
| • Thank the student and completed the session. | 1 2 3 | |

**C. Overall rating:** How would you rate the session? Circle one.

| Poor | Fair | Good | Excellent |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

**D: Additional comments:**

| Training |
|---|

**A. Observation Information**

**Directions**: Please complete the following information about the session you are observing.

1. Observer: _____ 2. Student: _____

3. Date: _____ Time (start/end): _____

**B. Fidelity Checklist Directions**: Based on your observation, please check if the implementer has done the following items.

**(Rating guide: 1-not observed 2- not sure 3- observed)**

| The implementer | Rating | Comments |
|---|---|---|
| • Set the student in a quiet area that has minimal disruption. | 1 2 3 | |
| • Training: Introduce/ review the expository text structures. | 1 2 3 | |
| • Training: Identify signal words. | 1 2 3 | |
| • Training: Use the description text visual display | 1 2 3 | |
| • Training: Read a reading and use the strategy together with the student. | 1 2 3 | |
| • Place the reading and a visual display of the text before the student. | 1 2 3 | |
| • Instruct the student to read the reading, organize text on paper, and answer the 8-item comprehension questions. | 1 2 3 | |
| • Allow sufficient time for the student to complete the reading and answer the questions. | 1 2 3 | |
| • Take the reading, the paper for organizing information, and the 8-item questions away from the student. | 1 2 3 | |
| • Ask the student to recall the information on the reading. Tape recording the response. | 1 2 3 | |
| • Thank the student and completed the session. | 1 2 3 | |

**C. Overall rating:** How would you rate the session? Circle one.

| Poor | Fair | Good | Excellent |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

**D: Additional comments:**

## APPENDIX H: SAMPLE COMPREHENSION TEST "TREE FROGS"

| Questions | Question analysis |
|---|---|
| 1. What is the main idea of the article? (a)<br>a. Things about tree frogs.<br>b. Tree frogs' babies are tadpoles.<br>c. Tree frogs eat like us.<br>d. Tree frogs live in the trees. | Main ideas<br>Detail information<br>Word meaning<br>Who, where, when, what, why, how questions |
| 2. Where does a tree frog live? (d)<br>a. In a house<br>b. Under water<br>c. In the flower<br>d. In a tree | Main ideas<br>Detail information<br>Word meaning<br>Who, where, when, what, why, how questions |
| 3. How can a frog cling to a tree? (b)<br>a. It has long legs.<br>b. It has fingers with flat pads.<br>c. It is green.<br>d. It eats bugs. | Main ideas<br>Detail information<br>Word meaning<br>Who, where, when, what, why, how questions |
| 4. What are "tadpoles"? (b)<br>a. They are frogs' foods.<br>b. They will grow into frogs one day.<br>c. They cannot be frogs one day.<br>d. They have long legs. | Main ideas<br>Detail information<br>Word meaning<br>Who, where, when, what, why, how questions |
| 5. What do frogs eat? (c)<br>a. Trees<br>b. Fruits<br>c. Bugs<br>d. Meats | Main ideas<br>Detail information<br>Word meaning<br>Who, where, when, what, why, how questions |
| 6. How do frogs eat? (a)<br>a. They use their tongue to grab a bug.<br>b. They hop on a bug.<br>c. They use their hand to grab a bug.<br>d. They cling to a tree. | Main ideas<br>Detail information<br>Word meaning<br>Who, where, when, what, why, how questions |
| 7. Which one is NOT true? (d)<br>a. Frogs like to eat crickets.<br>b. Frogs can hop way up into trees.<br>c. Frogs' sticky pads on fingers help them not slip.<br>d. Bugs eat frogs. | Main ideas<br>Detail information<br>Word meaning<br>Who, where, when, what, why, how questions |
| 8. Why does a tree frog live in a tree? (c)<br>a. It's a beautiful place.<br>b. So it can eat bugs.<br>c. It's a safe place to hide.<br>d. So it can cling to a tree. | Main ideas<br>Detail information<br>Word meaning<br>Who, where, when, what, why, how questions |

## APPENDIX I: SAMPLE INFORMATION UNITS "TREE FROGS"

| Topic | Main Idea | Information Units |
|---|---|---|
| Tree Frog | a tree is home and a safe place to hide | tree |
| | | tree frog |
| | | hide |
| | | safe place |
| | frogs have fingers with flat pads<br>Sticky pads help a frog grip and cling to a tree without slipping | fingers |
| | | flat pads |
| | | fingers with flat pads |
| | | sticky |
| | | pads are sticky |
| | | grip |
| | | pads help a frog grip |
| | | cling |
| | | cling to a tree |
| | | a frog can cling to a tree |
| | | slip |
| | | a frog will not slip |
| | | drop |
| | | a frog will not drop |
| | Frogs have long legs that help frogs hop from place to place | leg |
| | | long legs |
| | | body |
| | | little body |
| | | a frog has a little body and long legs |
| | | hop |
| | | long legs help frogs hop |
| | | place to place |
| | | frogs can hop from place to place |
| | | up into trees |
| | | frogs can hog up into trees |
| | Tadpoles will become frogs. Frogs carry their young on the back. | tadpoles |
| | | tadpoles will be a frog one day |
| | | little frog |

| | | |
|---|---|---|
| | | the little frog cling to the back of a big frog |
| | | big frog hop |
| | | drop off |
| | | small frog will not drop off |
| | Frogs eat bugs | bugs |
| | | frogs eat bugs |
| | | grab |
| | | frogs grab a bug |
| | | crickets |
| | | frogs eat crickets |
| | | eat |
| | | frogs eat like we eat |

## APPENDIX J: RECALL QUALITY RUBRIC

| Score | Description of quality |
|---|---|
| 1 | Student recalls only one or two words. The content of recall is inconsistent and does not make sense. Student recalls facts that may or may not be relevant to the topic or main ideas of the article. |
| 2 | Student recalls in short phases or short sentences. The content of recall is somewhat consistent. Student recalls facts that are somewhat related to the topic or main ideas of the article. |
| 3 | Student recalls in phases or sentences. The content of recall is consistent. Student recalls facts that are related to the topic or main ideas of the article. |
| 4 | Student recalls in long phases or sentences. The content of recall is consistent. Student use common senses or background knowledge to connect with new learnt knowledge. Student recalls facts based on the topic or main ideas of the article. |
| 5 | Student recalls in long phases or sentences. The content of recall is consistent and coherent. Student use plenty of common senses or background knowledge to connect with new learnt knowledge. Student recalls facts based on the topic or main ideas of the article. |

## APPENDIX K: ORAL RETELL TRANSCRIPTS

Retell_20140602_Pam
S: Very good question. What is in the article
P: Uh, it's about um strong, high, higher, and more (S: uh-hum). Oh yeah, and um this is some- there's some stuff you can email and all that. You can email to your friends, write the letter to them, sometimes I go to my friend's house. I don't, I can't email (S: uh-hum) or write them a letter (S: Okay). Or call them.
S: ok. What else is in the article
P: Um, bridges, (S: uh-hum) and stones of bridges, and steels of bridges, and skyscraper, that's suppose it I know(S: uh-hum).
S: That's all? Anything else?
P: Oh, wait, the bridge is 24 miles long.
S: Good memory
P: I remember that one.
S: That's all?
P: Yes
(END)

Retell_20140602_Scott
S: Tell me what is in the article
Scott: Uh, swans, ducks, and and uh and uh turtles, and (.3) grass hoppers, and (.3) uh that wood, and would what else would be that (.5) Turtles, snap their food. That's all. The End. End end end (inaudible) down low.
S: What else do you remember? Can you use a complete sentence to talk about?
Scott: I did,
S: That- You were only naming animals.
Scott: Animals lives in the water (S: uh-hum). That's all.
S: That's all?
Scott: Yeah. (inaudible)
S: Okay.
(END)

## APPENDIX L: INTERVIEW TRANSCRIPTION

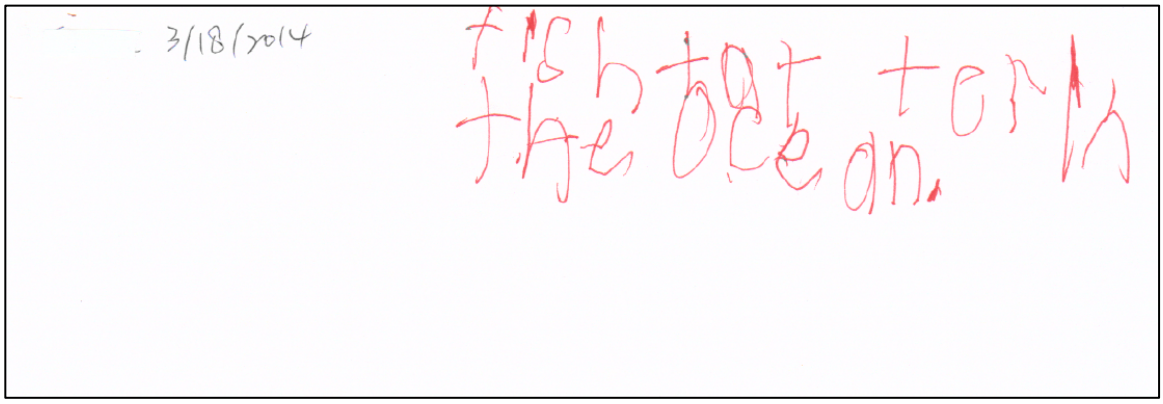
Interview_201405015_Brian

S: I'm going to ask you a few questions. So, remember what we talked about every time we are here, we're learning about reading-
B: reading-
S: -learning about text structure,
B: uh-hum-
S: -and to understand and remember information, what do you think about that?
B; Um… uh-hum
S: What is uh-hum?
B: Okay,
S: Do you like what you learn? Do you remember things, yes? What do you think about searching signal words?
B: Um (.5) Good.
S: Good (LAUGHTERS) what about good, what about it?
B: Um (.5)
S: Do you remember we talked about signal words? There are a list of the signal words for description structures, it's the to illustrate, and, again, also, for instance, moreover,
B: Good
S: It's good. Do you remember them?
B: uh-hum
S: uh-hum. Will you use them when you are writing?
B: Not all the time
S: Not all the time, okay. Well, you can try to use them. What do you think about using the graphic organizers? Do you use-
B: Good.
S: to organize information? Good. Do you think it's easy or hard.
B: A little bit hard. cause it's hard to find the information.
S: (LAUGHTERS) It's hard to find information. well, I noticed that two times or three times that you didn't do. Why you didn't do that? Why you didn't do that organize part of the information?
B: Cause I try to do it without the organizer.
S: You want to do it without? And what do you find if you do it without the organizer.
B: Sometimes I get the questions ok, sometimes don't
S: Sometimes you get the questions right, sometimes you don't. And do you feel like you remember more information when you do the organizer or you remember not so much information.
B: I remember a little bit.
S: A little bit, okay. And is it better than you do the organizer or not better?
B: It's only a lit- organizing the organizer we are talking about a little better than not organizing.
S: Okay (LAUGHTERS) it's a good answer.

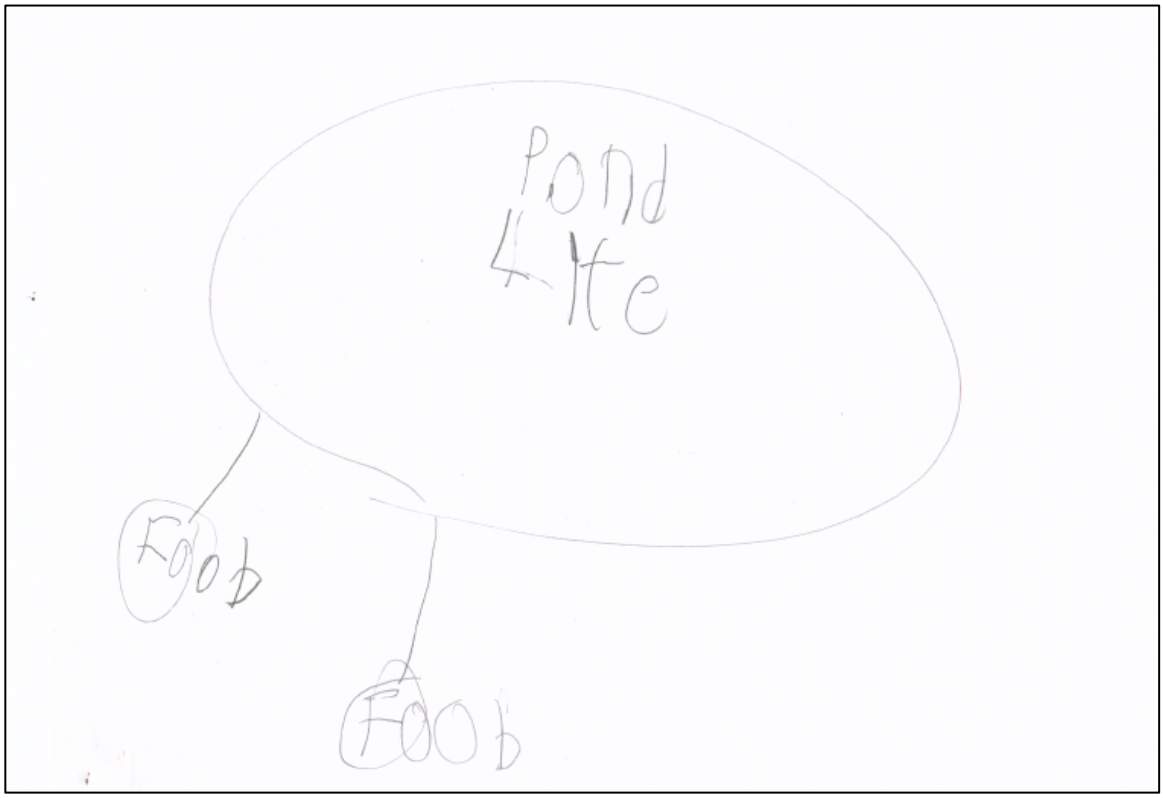
B: About zero percent
S: A what?
B: It's about the same.
S: It's about the same? So you prefer not to do the organizer?
B: Yeah,
S: Okay,
B: Cause what if I-
S: Because it takes more time?
B: Cause I think what if I cannot get a paper
S: uh-hum, oh, yeah, that's a good question. What if you cannot get a paper
B: Yeah,
S: I think you can organize in your brain, how's that?
B: It's also too hard.
S: It's also too hard-
B: to remember. cause it's too hard to remember.
S: Well you can pick-
B: You have to remember all the information if don't get a orgn graph
S: But you can pick the important information and then remember it in your brain.
B: Okay.
S: Yeah, then you will know. So, will you keep using the strategies the reading strategies that we learned? The before you read-
B: uh-hum
S: What is before you read?
B: Uh, before you read, go back and check what you have- Think about what you already know.
S: Good. And organizing information while you're reading.
B: Organizing information.
S: What do you do after you read.
B: After I read (S: uh-hum), Um, go back and read it again?
S: uh-hum Do you have to do that every time?
B: No
S: No, so first you have to check if you understand, right? Will you use that every time you read?
B: Not always.
S: No always, but sometime?
B: uh-hum
S: Okay. Do you want to learn more text structures? Because we only talked about one type of text structure is the description. (B: uh-hum) There are some more types of text structure, like compare-contrast, like time sequence, do you want to learn more?
B: uh-hum
S: Okay, good. Okay, that's all I have to ask. So for next two weeks, I won't be here, but I'll be here last week of the school. Okay? And I will- we will be reading two more articles to see if you remember to use those information. Okay. Great job. Oh, what kind of book do you like to read? I should ask that.

B: I don't know what to read
S: You don't like to read?
B: I really don't have a favorite book I like to read.
S: You must have one that you like
(Time: 5:01)
(the following conversation was not related to the interview)

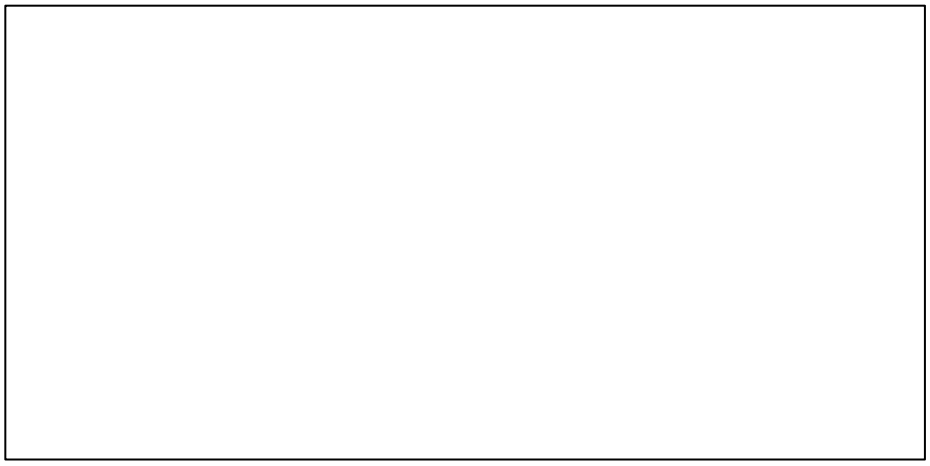
## APPENDIX M: PARTICIPANT-GENERATED VISUAL DISPLAYS



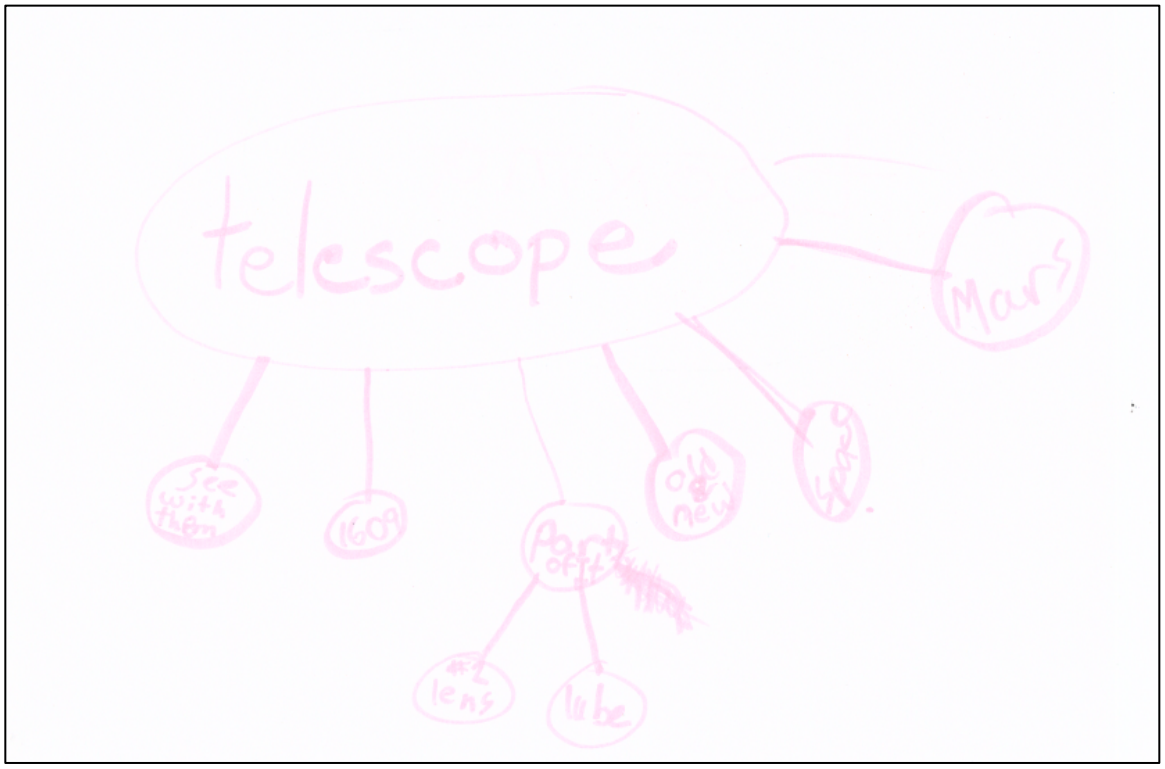

Stan's organizer before training for "In the Ocean"



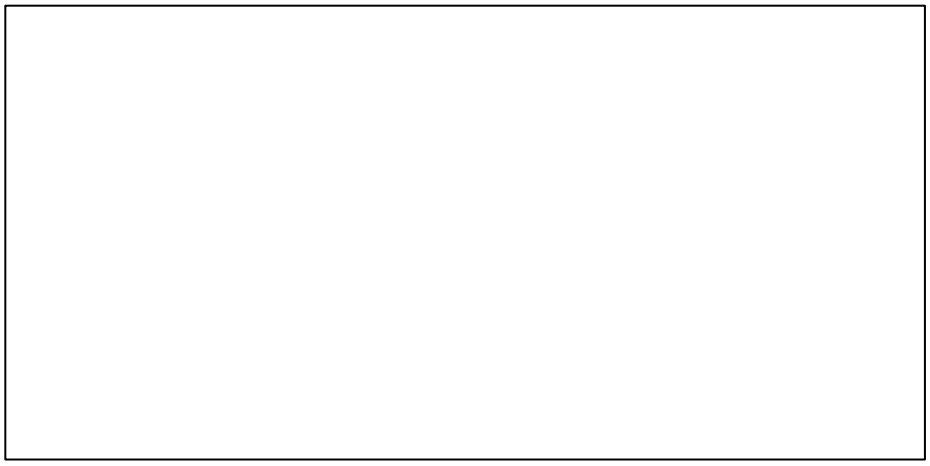

Stan's organizer for "Pond Life" after training



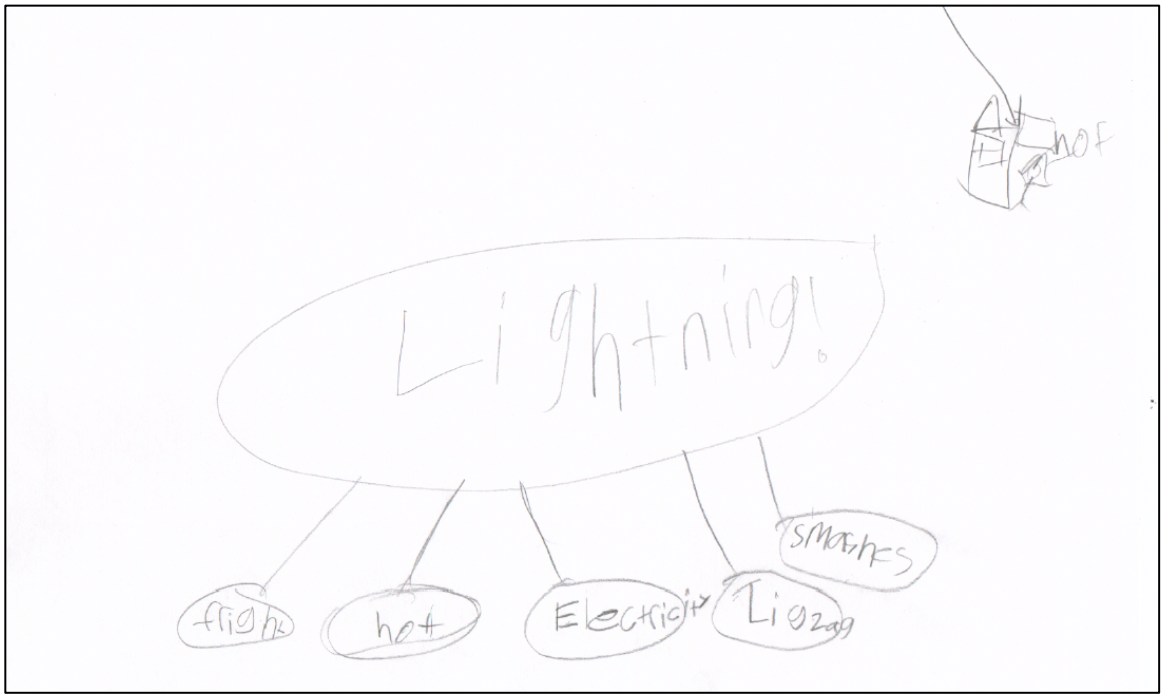
Pam's organizer before training



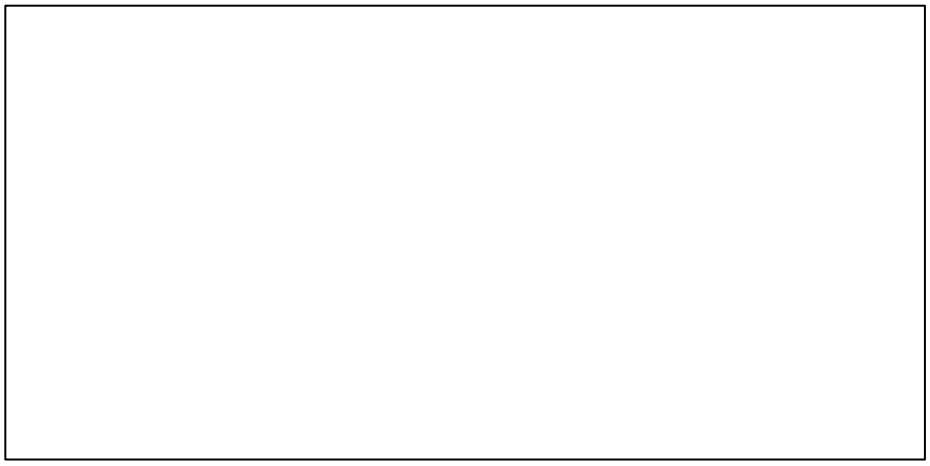

Pam's organizer for "Looking at Stars" after training phase



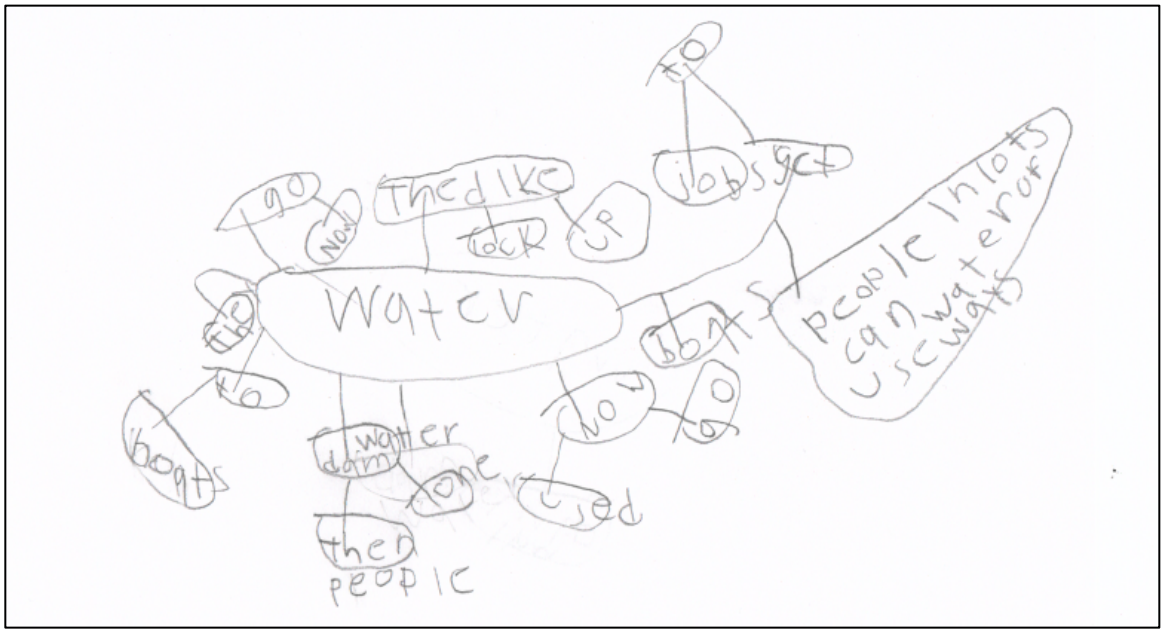
Casey's organizer before training



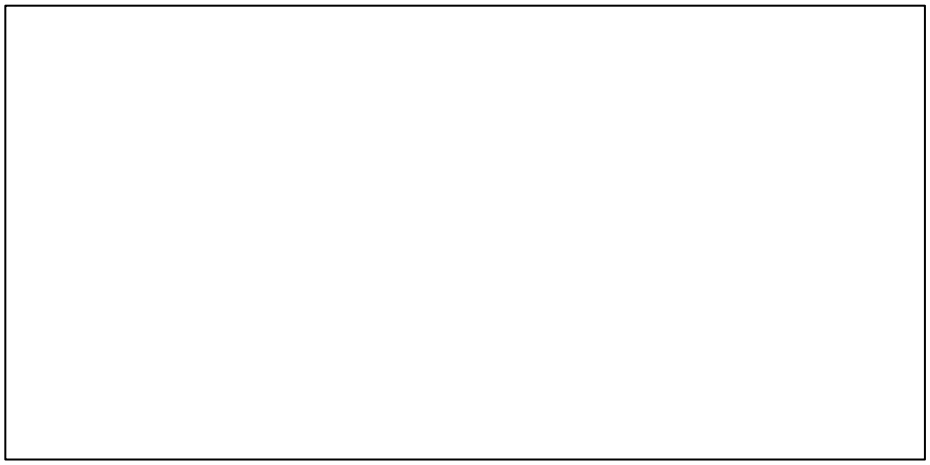

Casey's organizer for "Lightning!" after training



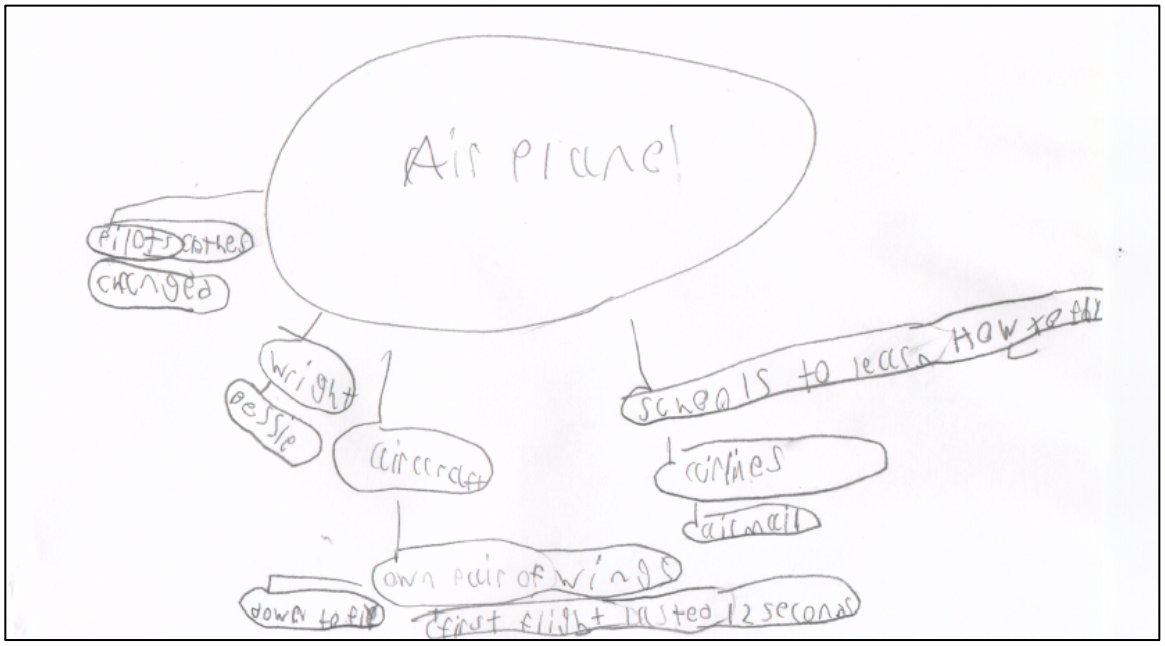
Frank's organizer before training




Frank's organizer for "How Can We Use Water?" after training



Brian's organizer before training




Brian's organizer for "Airplanes!" after training

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# Vita

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